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THE OOLOGISTS' RECORD

*A Quarterly Magazine devoted to the advancement
of Oology in all parts of the World.*

EDITED BY KENNETH L. SKINNER.

VOLUME I - - - - - - - - - -

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[March 1, 1921.

EAST AFRICAN NOTES.

The writer left London on 17th June, 1920, for Zanzibar *via* Suez. Port Sudan was reached on 12th July. Great heat prevailed, up to 110° in the shade on board, and the desert looked anything but inviting. However, an excursion south-west of the town, made between five and nine a.m. of the following day, was not entirely unproductive. Crossing a rubbish-strewn waste we entered a region where isolated wells permitted of some cultivation and found a *Prinia*, which I took to be *P. gracilis* (Licht.), breeding in low bushes and hedges round the sandy gardens. One nest contained three fresh eggs, small, rounded, and well covered with cloudy brick-red markings. Another was just ready and a third apparently deserted: at least four pairs of the birds were seen. As I was walking beside a fairly high hedge a dove burst noisily forth on the other side; I was just in time to identify it as *Oena capensis* (L.), the Namaqua Dove, and presently found the tiny frail nest, built well into the middle of the hedge and containing one slightly incubated egg. This dove was fairly common in the vicinity. Other birds noted were a Pelican, a Gull (probably *Larus leucophthalmus*, Temm.), a Vulture of the genus *Neophron*, *Charadrius tricoloris*, Vieill., *Corvultur crassirostris* (Rüpp.), *Rhinocorax affinis* (Rüpp.), a Lark of the genus *Pyrrhulauda*, and one other, and perhaps half a dozen other birds. The interesting thing was that the few birds there were belonged chiefly to Æthiopian and not Palearctic types.

At Aden, a few days later, the harbour was as usual full of Kites, *Milvus ægyptius* (Gm.), whose nests one could see high on the cliffs about the tanks—but they were not in use. From the look of a nest of *Riparia obsoleta* (Cab.) actually in one of the tanks, but out of reach, and the discovery of fragments of a dove's egg under a tall fig tree at the same place, we concluded the season was not long over. The Bulbul, *Pycnonotus arsinæ* (Licht.) was the only other bird I remember seeing; a reminder that Aden also forms part of the Æthiopian region, despite its being in Asia.

After these arid spots Mombasa, where we anchored in Kilindini Harbour on 24th July, seemed a veritable paradise : it was delightful to see once more the palm trees and baobabs and watch through the glasses the gay-coated Weavers flying to and fro among the tropic vegetation that fringes the coral cliffs. We stayed here six days, but I had only one short bird excursion, the fruits of which I will incorporate with observations made on my return to Mombasa after visiting Zanzibar, where I stayed from 31st July till 9th August. Only on one day, 8th August, did my work permit of an outing in the most interesting Island of Zanzibar.

In the morning I visited a small verdure-clad islet in the harbour where Herons, probably *Melanophoyx ardesiaca* (Wagl.), are said to have bred, but found nothing. In the afternoon a friend took me a delightful short trip by motor-cycle to a swamp where a colony of the Golden-yellow Weaver, *Ploceus aureoflavus*, A. Sm., were breeding in the ambatch (*Herminiera* sp.—a leguminous shrub). The nests, comparatively small, neatly shaped, and without spout, reminded me of those of *P. castanops*, Shell., of Lake Victoria, which belongs to the same sub-genus (*Xanthophilus*, of Reichenow). One often finds that similarity of nest-structure confirms affinities postulated on other grounds. I took in all nine eggs, all of uniform unspotted pale blue colour. Most of the nests contained young.

Returning by way of the Island of Pemba, where birds are scarce in the dense gloomy groves of clove-trees, duty kept me in Mombasa from 11th August till 8th September. During this time, besides many short walks on the island itself, I was able to extend my acquaintance with a locality on the mainland south of Mombasa, which I had first discovered as a haunt of birds in July-August, 1918.

It is always a little difficult to convey a right impression of a place to those who have not seen it, and I think this is especially true of any part of the tropics. Let me try, however, to bring the reader with me in spirit to Ras Mwaka Singe, the name by which I know the locality, taken from the Arab-Swahili for the ocean head-land on the east of it. We cross from Mombasa Island in a native ferry, over the deep sea-arm that leads to Kilindini, and in a quarter of an hour land at Likona on the mainland, whence the road runs southward, more or less parallel with the coast on one's left, to Vanga and so right on down to the old German border. Between

this road and the ocean is a strip of wild uninhabited scrub, the northern extremity of which is the part I know. We turn off from the ferry-landing away from the road by a native path which leads along the coral cliffs eastward through cocoanut plantations and plots of cassava and sweet potatoes with a good deal of long grass and jungly shrubs. There is nothing special to detain us, but we may note as we go drongos, a couple of weavers, Bush-shrikes (*Tschagra*) and maybe a Roller, *Coracias caudatus* (L.). In half a mile we are clear of the huts and cultivation, and passing through a belt of seven-foot-high grass we turn southwards, rise perhaps fifty feet in a quarter of a mile, and find ourselves in the "good country." Who else but a bird enthusiast would so describe it is another matter. We are on a sort of low tableland, where a high but light growth of ripening grass (it is August and the big rains are just over) conceals the ever-present "coral rag" just enough to let one stub a foot every five yards. Look back northwards and beyond the belt of jungle-grass below us the ground falls rapidly to the coral cliffs skirting the Kilindini arm; across the narrow blue seaway the mansions of New Mombasa gleam white under the bluest of tropic skies, and again beyond them the flag of the Sultan of Zanzibar floats in the light south-east wind over the old fort built by the Portuguese, foes of his ancestors. Eastwards, it is a bare mile to the ocean beach and the breakers of the Indian Ocean. In the opposite direction one gets, after about a mile, to less interesting country, a richer soil with dense growth of palms, closely cultivated. To the south—but who knows how far this delectable plateau, with its dozens of varieties of thorn trees and evergreen bushes, scattered here in singles, there in clumps, may extend. Never does the scrub form an impenetrable wall. Go up a narrowing glade which seems a *cul-de-sac*, there is always a little break at the end which leads to the real glade. For me, wrapt in the fascinations of the oological chase, the westering sun has always warned me that it was time to retrace my steps long before I had done more than penetrate the fringe of these happy hunting grounds. Surely all you who read can imagine, if you do not know it, the really likely looking thorn-bush, just fifty yards ahead, and then, even if that one does draw blank, the still better one a little further on; and the ten minutes one allows oneself to watch this or that and lo! it is 5.30, and we can only get back to the island ferry before dark if there are no distractions on the way, and how disappointing if no

distractions arose from long grass at this time of the evening! This I am afraid is rather a long introduction to a short list, and I must add that the birds which strike one first do not apparently nest there, as the glorious Carmine Bee-eater, *Merops nubicus*, Gm.

The following is a list of the species observed breeding, including also one or two which I got in 1918, but not this year. The nomenclature is Reichenow's, the English names those of Haagner and Gunning so far as they went: beyond that I fear I invented them. Locality is Ras Mwaka Singe except where Mombasa Island is mentioned. Latitude is about 4° south of the Equator. Of course, many other birds breed which I was not lucky enough to find eggs of, e.g., a Drongo, a Sylviatta, two or three Woodpeckers, the Shrike, *Lanius caudatus*, Cab. The beautiful Golden Pipit, *Tmetothylacus tenellus* (Cab.), was quite common and certainly breeding in 1918, but I saw nothing of it in 1920 on the same ground even better explored.

Turtur capicola tropicus, Rchw. The local race of the Cape Turtle Dove, with its monotonous triple coo, "Tokaaba, tokaaba" as the Baganda say, was common and nested freely. A pair of eggs taken at end of July, 1918, were in a nest built in a mangrove standing in a creek of the sea.

Chalcopelia afra (L.) and *C. chalcospilos*, Wagl. Reichenow first lumped, then split, these. *C. afra*, with blue-spotted wings, is, he says, the larger, the other smaller with green wing spots. Van Someren distinguishes them easily, but says you get blue, green, and bronzy wing-spots, all in *C. afra*. These doctors disagreeing, I confess I cannot tell one from the other bird in the field, and I had no gun at Ras Mwaka. I took clutches of 1, 2 and 2, of which one clutch of 2 was much larger than the others. The single was in a nest built on a broad swath of dead cocoanut bark which had fallen into a guava tree. The nests themselves are very small and frail, usually built about five feet from the ground.

Francolinus granti, Hartl. Grant's Spur-fowl. (?) On 5th September a Francolin flew up in long grass at my feet. The nest, containing two eggs, hard-set and with shells so hard I had to file them through, was simply a depression in the blackish soil (which here lay shallowly over the coral) not bigger than the palm of one's hand. It was a few yards away from a bush. The grass, about two feet high, was nearly dead. There was no lining to the nest,

except a few bits of leaf and grass which may have been accidental, and only one small downy feather. Reichenow describes the eggs of Grant's Francolin as finely freckled. These were uniform drab colour: otherwise the locality indicates the present species.

Colius macrourus (L.). I was delighted to find on 27th July my first nest of the Blue-naped Coly, and to identify the bird on it. The three eggs were fairly heavily spotted with markings varying from black, in what was probably the first laid egg, through deep brown to light umber in the last. The nest was five feet from the ground in a thorny bush, rather an isolated one. It was a flattish cup.

Colius leucotis affinis, Shell., the White-cheeked Coly, was very common indeed. One nest had as many as six eggs in various stages, but four is the normal clutch. The nest is of stout grass and twigs and lined with finer grass; it is in the form of a flattish cup or deep saucer and is generally fairly well hidden in leafy boughs at a height of five to ten feet. The eggs are always pure white, and for some reason much cleaner than Uganda eggs of the same bird. I think that in Uganda they add green leaves to the nest after laying and these get broken up by the bird's feet and stain the eggs. Reichenow quotes Böhm, usually a fine observer, as saying the eggs are streaked with black: he must have confused this species with *C. macrourus*.

Apus affinis (Gr. Hardw.), the Indian Swift, clusters its untidy nests in niches of old Mombasa Fort and under the eaves of every second building in the city; but they lay about May, and I got no eggs of either this or what I took to be *Apus horus* (Hartl. Finsch), a squarer-tailed swift which nests singly in the Ras Mwaka cliffs, usually well out of reach.

Bradornis pallidus murinus, Finsch Hartl., the pallid Flycatcher, was another "find" for me. I took two sets, 3 and 2, 28th August and 9th September. In the latter case the bird was not on when I approached the small thorn-bush in which, at five feet, was situated the loosely built flattish nest of dead tendrils lined with fine dead grass. After I had waited half an hour she returned. The nest was more exposed than that of almost any other species I found. The eggs reminded me strongly of those of the Australian Scarlet Robin, *Petræa leggii*, Sharpe, reddish spots all over a green ground. Emin Pasha's description of the nest and eggs quoted in

Reichenow (III, p. 830) is a mistake : he is clearly describing those of the Morning Warbler, *Cichladusa guttata* (Heugl.), when he speaks of a mud-built nest with uniform bright blue eggs.

Pomatorhynchus senegalus (L.). The liquid whistling notes of the Senegal Bush-Shrike resounded on all sides. I found many nests, frail grass-built, root-lined structures, through which the two or three eggs were always visible from below. Nests were placed at from four to eight feet from the ground, usually not well concealed. Not in one instance were the markings of the scrawly bunting-like character generally attributed to this species.

Ploceus nigriceps (Lay.), the Black-headed Weaver was nesting in colonies on the great coconut fronds, generally over a village and at a height of thirty or forty feet. Nests examined towards the end of July had young of a size which indicated late June as the laying season. I took one addled egg.

Ploceus bojeri [(Hartl. Finsch) Cab.] Bojer's Weaver was commoner on Mombasa Island than on the mainland. Nests were usually within reach, on tall slender shrubs. I took one clutch of 3, but 2 was usual. I did not find the differences in colour mentioned by Reichenow, my series of over twenty eggs showing little variation. On the whole they reminded me of the eggs of *P. dimidiatus* (Antin. Salvad.) of Uganda, both in colour and size, which is curious, as the birds are placed in different sub-genera.

Spermestes scutata, Heugl. A set of six eggs of the Hooded Weaver-Finch taken from a nest in a lemon tree near the Fort, Mombasa, showed some variation in size *inter se*. The nest was very small as compared with Nyasaland nests of this species.

Uræginthus bengalus (L.). Bengali Finch. Most clutches of this species on the Island numbered 4. and were taken from re-lined nests of *Ploceus bojeri* [(Hartl. Finsch) Cab.]. I saw a few " independent " nests, however.

Pyromelana flammiceps (Sw.). The Zambezi Bishop-bird was not uncommon on the island, but I did not see it on the mainland. I only found one nest, which had young : it was built with nests of the next species among a colony of *Ploceus bojeri*, but the much larger size of the nest of *P. flammiceps* differentiated it easily.

Pyromelana nigroventris (Cass.). The Black-bellied Bishop-bird was commoner on the mainland. Three was my maximum clutch. The eggs, like those of all the genus, are uniform dark

turquoise-blue. The nests are frail transparent purses, slung at a height of from four or five feet between a couple of stems of tall grass, usually in a dense belt of it such as is found along the Kilindini arm.

Serinus icterus icterus (Vieill.). The Moçambique Serin was the only finch found breeding, and though I noted many old nests and one with young I found but a single egg. The nest was small and hidden among short tufty leaves of a thorn bush about seven feet from the ground, and lined with shredded fibre only. After experience of *S. i. barbatus* (Heugl.) of Uganda, *S. i. icterus* (Vieill.) of the coast, and *S. i. madarászi*, Rchw., of Nyasaland, it may be put on record that there is no perceptible difference in the song, nesting habits or eggs of these three sub-species.

Mirafrja fischeri (Rchw.). Fischer's Castanet Lark was the only one of its family noted. Like *M. apiata* (Vieill.) of the Cape, *M. rufipilea* (Vieill.) of the Orange Free State, and *M. rufocinnamomea* (Salvad.) of Central Africa (all of which make the curious castanet noise with the wings in flight), this bird domes its nest over. It is very hard to find, as the bird ordinarily runs from it for yards through the grass before getting up. In late July, 1918, during rain, one rose at my feet from the sodden grass and I obtained a clutch of 3 eggs, heavily marked all over.

Phyllastrephus flaviventris mombasæ (Shell.). In 1918 I sought in vain for the nest of the Mombasa Bulbul in dense thickets where the bird itself is usually to be heard. This year I stumbled upon two nests by seeing the bird fly off at close quarters. The first (29th July, 1920) was about four feet from the ground in a wait-a-bit thorn. The nest was small and frail, but otherwise like that of a *Pycnonotus* and no better hidden: the bush was very lightly leaved. Base of nest was a little shredded grass, lining of fine dead leaves and rootlets; no hair, wool or cocoons. The second nest (28th August, 1920) was better concealed: it was two feet from the ground near the top of a very small green shrub which was growing up through the low branches of a larger tree. The lining in this case was of dead tendrils. The clutch was two in each case.

Pycnonotus layardi, Gurn. The notes of Layard's Bulbul are rather like those of the last and one may imagine it more common than it is. However, I found more old nests of this than of any other bird. Three contained eggs, rather smaller than those of birds from

Nyasaland. Two is the invariable clutch with this species in East Africa, as with *P. tricolor minor*, Heugl., in Uganda : but in Nyasaland three is quite normal.

Anthreptes collaris hypodilus (Jard.). Of the three or four sun-birds noted, I only found nests of the Zambesi Collared Sunbird. A clutch of two fresh eggs taken 21st August, 1920, did not differ from Uganda specimens except in being rather more thickly marked. The nest was very small, almost open at the top, so that the eggs could easily be seen. It was built of fine dead shredded grass-stalk cases and fine grasses, ornamented exteriorly with a few dark brown masses of what seem to be dead clumps of insect eggs. The lining was of whitish seed-down. A long "streamer" of fine grass hung from the lower lip of the nest, downwards towards the left. The nest was about four feet from the ground and attached by the back to a thin well-leaved branch—near its end—of a green rather thorny shrub, in open scrubland on the coral rag.

Cisticola hypoxantha reichenowi (see *Journal für O.*, 1918. p. 103). This local race of Fraser's Grass Warbler was common and breeding, most nests found containing young. On 27th July, 1920, I took a clutch of four eggs from a nest slung about twelve inches from the ground between the stems of grass which grew six inches higher. It was of the usual Cisticoline construction, slightly domed, of broadish grass and lined with fuscous seed-down. The eggs, finely freckled all over with red, were like those of the same species from Jinja, Uganda.

C. F. B.

BIRD NOTES FROM THE WESTERN FRONT.

By J. BISHOP.

Having read the very interesting articles in the "O. E. and M." by Mr. Ritson and Captain Congreve, and others, which have appeared in other periodicals, on birds met with in France and Belgium, I thought it might be worth while to place on record my own experiences during three seasons spent in the War zone.

Being but one of the rank and file, and more or less on the line, naturally my range was somewhat limited, but whenever the slightest opportunity presented itself I was with my beloved birds and thus brightened many an otherwise grey period. I was able to keep a rough but faithful diary covering the period I was out and will

quote a few extracts from it. I propose to deal firstly with the most interesting species nesting in the vicinity of the villages and close to the front, chiefly in the Arras and Somme regions.

CIRL BUNTING, *Emberiza cirrus*, Linn.

I first heard the monotonous, though to me cheerful enough, song of this bird as early as 4th February, near Aveluy, Albert, and ever after could always be sure of having his company until one neared the Belgian border (Ypres) where it was noticeable by its absence. A favourite nesting site in France is a hawthorn hedge if bordering a lane, where it should be sought on the lane side; but the orchard must be there for this bird loves an orchard. Many nests are also built Tree-Pipit-fashion on the rough orchard hedge banks, and again on the road or lane side. Once I found two nests within twenty-five yards in such a situation. 30th April to 9th May is an ideal time, 5th May being the best date for their normal clutch of four eggs. I only found one nest with five eggs.

BLACK REDSTART, *Phœnicurus titys* (Linn.).

Little sooty sprite of the ruins, no place scarcely along the line was without at least one pair of these pretty little birds. One village near La Basse held five pairs to my knowledge. I met with it, and know it was nesting, in Dunkerque, Albert, Arras, Ypres and Lille. I took a nest off a charred beam of a house in the Rue de Peronne, Bapaume, in May, 1917. I often saw him perched on a gable-end or chimney stack, giving out his redstart-like song, the concluding stanzas of which remind me of the tearing of a piece of linen, and which, once heard, is not easily forgotten.

The nest is a bulky structure externally of loose grasses and neatly lined with wool, hair and occasionally feathers. It is usually built on a beam of some ruined building or farm outhouse but the bigger the ruin the more he seems to like it. Four and five pure white eggs appear to be the normal clutch and the latter part of May is the best time to look for eggs.

WHITE WAGTAIL, *Motacilla alba*, Linn.

I must support Captain Congreve in stating that I only met with the Pied Wagtail once and that was in a chalk pit near Paris, where it appeared to be nesting. It was always the White Wagtail that I met with wherever I went. Many times have I been charmed by one particular pair of these birds near Arras. A favourite site for the nest was the pollarded crowns of willows which are so

often seen in France. Another place was the topmost beam of some lofty barn or other building. I draw attention to this point as it is so unlike the Pied Wagtails of my home district, which prefer to nest in amongst the slag tips, quarries, and stone heaps. This bird seemingly differs little from the British form in the actual construction of its nest and the coloration of its eggs.

BLUE-HEADED YELLOW WAGTAIL, *Motacilla flava*, Linn.

I found that this bird was more in evidence on the coast line than its near relative the Yellow Wagtail, *M. rayi* (Bp.). I met with the latter bird in many districts and found both species nesting together near Dunkerque. On one occasion I knew of a nest of each species within thirty yards and both nests contained six eggs. On this particular occasion the male Blue-headed Wagtail was attending to the incubation.

CRESTED LARK, *Galerida cristata* (Linn.).

A cheerful little thing in a land of mud and desolation and I can never forget him. As early as February I have heard and seen him high overhead, jerking about, rising in spirals, to come down like a stone when his cheerful, if not over musical, song was finished. I found him commoner than the Sky Lark which I rarely met with except in the Merville district where it was by far the commonest bird.

He loves broken ground, and is forever in evidence on some hummock from which one gets warning of his presence. This bird runs a good deal and is very cunning in its nesting economy. I took a nest off the top of an old German trench parapet near Bapaume. Early May is the best time to look for the nest which is similar to that of the Sky Lark. The usual clutch is five eggs.

LITTLE OWL, *Athene noctua* (Scopoli).

A very conspicuous bird all along the front ; in fact I met with it almost everywhere. It certainly was the noisiest bird and I have heard him trying his hardest to drown the screaming of shells going overhead. It is a moot point if he is not the commonest owl in Northern France ; he certainly runs the Barn Owl close.

SCOPS EARED OWL, *Otus scops* (Linn.).

To those interested in the range of this species I may say that I found this interesting little creature nesting some few kilometres from Arras in 1918. The peculiar cry, uttered with a monotonous regularity, I first heard one night in a wood of big timber whilst

listening to the song of a nightingale. Strange to say the male came and perched just above my head. Shortly after his little mate swept down beside him and I was charmed. The suspected nesting hole in a large oak, which I discovered in daylight, was eventually reached by a ladder. I had to make this ladder from "duck boards" and several amusing incidents took place with regard to it. Though it was then 25th May the hole contained no eggs, and I was moved on a day or so after so that my hopes of the eggs were frustrated.

ICTERINE WARBLER, *Hippolais icterina* (Vieillot).

One of the most persistent singers in France, he seemed to take up the thread of the nightingale's story. Wherever there were grounds or gardens it was almost sure to be heard. I have taken its nest in a red currant bush in the heart of Bapaume. One nest, now safely in England, I took out of a plane tree just outside the cinema theatre in the same town. I was prospecting for Goldfinches at the time, for two pairs were nesting near by. The nest, a beautiful structure, was some sixteen feet from the ground and composed externally of white confectionery paper, which gave it the appearance of a white ball. The eggs are usually five in number, and the nest is found in all kinds of bushes and shrubs at varying heights from four feet upwards.

CONTINENTAL SONG THRUSH, *Turdus musicus*, Linn.

I also met with this bird in the grounds of Vlamertinghe Chateau. I many times thought of it as a rarish bird in France and, if anything, more common near Lille and the Aubers Ridge. I took one nest with four fresh eggs on 1st July, 1919.

GOLDEN ORIOLE, *Oriolus oriolus* (Linn.).

I found this to be a common enough bird wherever there are woods and grounds to suit it. I met with it almost everywhere, but one must know its notes to locate it. Contrary to what I have read it is by no means a conspicuous bird and I rarely got a good view of the gorgeous plumage of the male "Loriet." They are noisy enough in all conscience and the cat-like call of the male, and the fluting note which follows it, are soon heard when their haunts are invaded. The nest is not always easy to find and often very difficult to get at. I have seen it at a height of sixty feet swaying in the breeze some thirty feet out on the end of a branch. I took one nest after several attempts to get at it by cutting the tree

down. This nest was some twenty-two feet high and suspended some twelve feet out from the centre of a beech sapling. This sapling was too slender to climb so I solved the problem with the aid of a jack knife and gently lowered nest and all quite safely. Fortunately there were four fresh eggs and this was on 21st May. I found the birds to be very bold and noisy when the young are hatched, but at other times they keep to the high tree tops.

Early in 1919 I was eligible for demobilisation, but was persuaded to stay on with the Army for a few months longer. It brought me the prospect of a move from the land of desolation to a part of the line which had been in German occupation for four years. I decided to risk it and did not regret it, for the country turned out to be better off as regards bird life as the following notes will show.

GREAT GREY SHRIKE, *Lanius excubitor*, Linn.

Though I have read many notes on birds seen at the front few have mentioned this most interesting bird. I met with it in many districts but it was nowhere very common. My first sight of it was in winter in the flooded area of the Ancre, and I shall never forget this bird, like a miniature Magpie, with his loping flight. I saw five nests in 1919 in all stages. I had a brood near my shack near Lille and had many opportunities of studying their habits. It may seem strange but it is a fact that I never heard the adult birds utter a note though the young are extremely noisy. I have climbed to their nests containing both eggs and young, and though the old birds have come back to the tree while I was at the nest, I have never heard them utter a note. The nest bears a great resemblance to that of the Carrion Crow, but is of course a great deal smaller. It is built, so far as my experience goes, high up in any tree commanding a look-out, even in a wood. I have seen its nest built from forty to, in one instance, as high as eighty feet, and needless to say I did not investigate the last-named one. The eggs, resembling small Magpie's, are usually six in number. My first find was a clutch of seven on 10th May, and these were in an advanced state of incubation. The nest is commenced in April, and the first week in May appears to be the best time for fresh clutches. I have a curious nest in my possession lined partly with stocking wool. A ball or card had been carried to the nest, and the branches of the tree were laced with this material, some forty or fifty yards of which I recovered.

CONTINENTAL STONECHAT, *Pratincola rubicola* (Linn.).

I met with three pairs nesting near La Basse, where I found them no less cunning than their British relatives. Two nests found had fledged young on 6th and 8th May. I found the second clutch of one pair of birds on 19th May, with six eggs, and another on 21st May with five. Little time had been lost in producing the second laying. I met with this species commonly in another district where it was nesting in company with Whinchats in similar conditions, such as railway embankments, hedge banks, etc.

MARSH WARBLER, *Acrocephalus palustris* (Bechst.).

I shall never forget one breezy morning in June when I first made the acquaintance of this bird. He was tossing about on the top of a spray of figwort with his little lungs expanded to bursting point. I often met with him after that and was always glad to listen to what I consider one of the finest songsters. It is curious that he should be named the "Marsh Warbler" for I rarely found him near water. The favourite site for the nest is a nettle bed in a dry situation. Their little home is slung to three or four stems of nettle, dock, burdock, figwort or any plant strong enough to hold it, and I have found it nesting on the outskirts of a bean field. It is usually about two feet from the ground, but on one occasion, owing to the nettles having been cut down, I found a nest quite four feet from the ground in an elder bush. The clutch seems to vary from three to six, and one nest with the latter number contained exceptionally large eggs. The usual clutch is five, and the best date for fresh eggs is 14th to 17th June. They seem to be very sociable and I found two nests within twelve yards of each other.

MELODIOUS WARBLER, *Hippolais polyglotta* (Vicillot).

Many of our readers may think it strange that I should have found this bird breeding so far north, but I am pleased to say I secured a nest on 11th June near Lille. I was first attracted by the song of the male bird which was very similar to that of the Icterine Warbler. The site of the nest was, however, not one that would be likely to be used by the latter. I was hunting rather aimlessly at the time when I hit upon a beautiful little structure partly attached to a beech shrub overhanging a stream bordering a willow garth. The eggs, four in number, were quite fresh, and bear a great resemblance to those of the Icterine, but are smaller, brighter and have smaller spots.

LITTLE RINGED PLOVER, *Ægialitis curonica* (Gm.).

I met with this little bird on the coastline but I cannot give much information as to its nesting habits. I had a male over me in late June, and I well remember his twisting flight and twittering notes. I found two forsaken nests holding two and one egg respectively. The situation of the nests was similar to that chosen by its larger relative and on a strip of shingle. The nests were similar to those of the Ringed Plover, and in one I found short pieces of the stalks of some marine plant.

KENTISH PLOVER, *Ægialitis alexandrinus* (Linn.).

Some few pairs of this species were nesting on the same ground as the Little Ringed Plovers. As in the case of the former I was too late for fresh eggs and the young were well on the wing. However, I was only a few hours at the spot so that I had no time to make a full investigation.

HEN HARRIER, *Circus cyaneus* (Linn.).

During the summer of 1919 I was given permission and essayed a wild goose chase into the Marne district. The main feature of the district in which I spent four days was a marshy valley with extensive reed beds. On the uplands above one heard the cry of the Stone Curlew while in the valley were to be heard the notes of Rails, Grasshopper Warblers, Reed and Sedge Warblers, not to mention the croaking of innumerable frogs and the chirping of grasshoppers, a ceaseless hum of life day and night. The woods were the home of the Buzzard, Green, Great and Lesser Spotted Woodpecker, Crested Tit and many other most interesting species.

To see, as I saw, a colony of Hen Harriers, was a sight never to be forgotten. Overhead, perhaps, there would be a Buzzard ringing, but the sight of all was to see as many as five Hen Harriers and four Kestrels in the air at once. Once I solved the problem I had no great difficulty in locating the nests and found five Hen Harriers' nests, but was a trifle too early as they had not finished laying. When I left on 26th May, my five nests contained respectively 4, 4, 3, 2, 2 eggs. The female broods a good deal during the laying period. The nests were a matting of dried reeds in clearings in the dense reed beds. I have successfully approached the brooding bird to within five yards so as to see every detail of her appearance. Her silvery blue mate keeps away on his own and does not seem to concern himself much with nest or eggs, at least during the laying period.

Other birds I met with in this valley were Quail (abundant), Scops and Little Owls, Baillon's Crake, Great Grey and Red-backed Shrikes, Goldfinch and many others.

LITTLE BUSTARD, *Otis tetrax*, Linn.

When one is pinched for time and in a strange country it is something of a handicap and had I had the time I feel sure I could have found a nest of this magnificent bird. I had my birds cornered to a certain stretch of lucerne (alfalfa) and the beautiful male bird was under observation on several occasions. One morning I found three female birds ringing round the place where I thought the nest was. At night I have heard the male in the same place calling with a double metallic note the like of which I have never heard before. I think that had I had more time I should probably have found the birds common, for my observations did not extend to more than a mile of ground.

OOLOGICAL NOTES ON SOME OF THE BREEDING BIRDS OF PALESTINE.

By CAPT. C. R. S. PITMAN, I.A., M.B.O.U.

From an ornithological point of view Palestine is a most interesting country and even more so oologically. First of all a brief description of the Holy Land is necessary, and it is extraordinary what a diversity of country has been crowded into so small an area, which is approximately 150 miles long with a breadth of 30 miles in the north and 50 miles at the southern end.

It is bounded on the west by the Mediterranean, and on the east by the Jordan Valley depression, varying from 600 feet to nearly 1,500 feet below sea level, and containing Lake Huleh (the source of the Jordan), the Sea of Galilee, and the Dead Sea, the two former fresh, and the latter extremely salt.

In the North and South there are no particular physical features which can act as lines of demarcation, and the boundary runs easterly to Lake Huleh from the rocky Cape Ras el Nakura (about 10 miles north of Acre) in the former instance; and from Rafa S.E. to Akaba along the International Boundary of old Turkey and Egypt in the latter; but Palestine proper does not really extend farther south than a line taken easterly through Rafa and Beersheba extended as

far as the Dead Sea depression. Along the whole length of the sea coast is a fringe of sand dunes succeeded by a fertile belt of undulating country under cultivation and several miles in width, cereals being predominant south of Ludd and north of Jaffa, while the intervening area is chiefly utilized for vineyards and groves of oranges, almonds and olives, with a certain proportion of eucalyptus spinnies and copses for fuel purposes. Running north and south through the centre of the land are the rocky limestone hills of Judea and Samaria, separated from the Hills of Nazareth and the country of Dan by the fertile, black cotton soil plain of Esdraelon, only a few miles in width, and situated between Haifa on the coast and Beisan (the ancient Bethshan) on the Jordan.

This plain is bounded for half its length on the south by the main spur of Mount Carmel, which rises abruptly from the sea at Haifa and runs in an easterly direction for about 18 miles, in the many subsidiary spurs to the S.E. Between the cultivated undulating coastal area and the hills is a narrow strip of very fertile black cotton soil in which cereals are grown. The hills of Carmel are scrub-covered, there being many evergreens and aromatic herbs. Olive and fig trees are abundant and produce heavy crops. Vines also thrive, and the local inhabitants try to cultivate cereals on terraces of the poorest and most scanty soil.

The Jordan Valley, in the vicinity of the river and its marshes, is full of a dense and tall jungle of tamarisk, reeds and papyrus, and other cover, which, more often than not, is quite impenetrable. The eastern slopes of the hills are in many places very bare, especially in the vicinity of the Dead Sea, and very precipitous with an almost total absence of vegetation.

In the hills small springs abound, though frequently the water only flows on the surface for a few yards and then disappears into the ground.

Three perennial streams, the Wadys Farah, Auja and Kelt, flow into the Jordan, while on the west the River Kishon, Wadys Zerka, Auja and Rubin are the only streams which reach the sea the whole year round, and not one of them is more than a very few miles in length.

The streams flowing to the coast usually broaden at their mouths into extensive marshy areas which abound with bird life.

The climate is cold in winter, snow being common in the hills of the north, these being not many miles south of Mount Hermon which is snow-capped almost the whole year, and even Jerusalem is every few years visited by severe snowstorms.

The rainfall is confined to the coastal area and hills, and only reaches the Jordan Valley in the vicinity of the Sea of Galilee and to the north, while it is practically unknown in the Jordan depression near Jericho and the Dead Sea.

The rainy season, generally speaking, commences in November and lasts till the end of March. It is heaviest from mid-December to mid-February, when it sometimes rains almost in lumps for days on end, while violent hailstorms with hailstones as big as cherries may be expected at the end of February or in early March.

As far as the breeding was concerned, I derived but little help from text books—and articles written during the War were often misleading—consequently I wasted much time in finding out the typical haunts (and then the specific localities) of the various species, and also missed much owing to inadequate knowledge of the dates of the actual seasons. In my notes, therefore, I have endeavoured to give an accurate and detailed account of the breeding habits of all the birds with which I became familiar; and if any of my readers should ever contemplate an oological trip to Palestine, and care to enlist my help, I will send them such information as to localities and seasons as will materially save a tremendous amount of time, trouble and expenditure. I found that all attempts to enlist outside aid from the inhabitants of the country invariably ended in failure.

Each type of country has its own breeding species of birds—I might perhaps broadly divide them into six classes as follows:—The seashore, the coastal plain, the hills, Mount Carmel and its spurs, the Jordan Valley depression, and Lake Huleh and its marshes.

The breeding avifauna is principally Palæarctic—though one semi-tropical form, *Cinnyris osea*, has been attracted by the orange groves from the Jordan depression and is reported to breed—while *Hagiopsar tristrami* is peculiar to the Jordan depression and breeds in cliffs in the gorges of the eastern slopes of the hills in the vicinity of the Dead Sea, and *Cercomela melanura* is also peculiar to this locality though not found lower than the bottom of the hill slopes.

My list is very incomplete as I only deal with those birds with whose breeding habits I have actual personal experience.

I. WARBLERS.

Agrobates galactotes galactotes.

This, to my mind, is quite one of the most interesting of Palestine breeders, and it is a summer visitor which is very common in the groves of the coastal plain, but though found in the Judean Hills is nowhere abundant on the high ground, and I have usually found it breeding in cover or gardens in the valleys in such localities. The first arrival in 1920 was noted on 11th April when I saw a solitary bird. Several were seen the next day, and by the 20th April they were plentiful throughout the coastal plain. Nearly completed nests were found in an eucalyptus grove on 30th April, and nests containing respectively 4, 1, 1 (all fresh) in a mimosa hedge on 1st May.

Up to the 14th May eighteen nests were found and all contained fresh eggs excepting a set of four taken on 9th May, which were on the point of hatching out.

During the latter half of May, of twenty-four nests found, twelve had eggs in an advanced state of incubation, and in the other twelve were either fresh eggs or eggs of not more than a few days incubation. Practically all these fresh eggs were found in the last week of the month. On the 26th May I came across my first nest of this species containing young, and these were a few days old.

In June fourteen nests were found containing eggs and an equivalent number or more with young ones. Eight of these nests contained fresh eggs and were well spread over the first three weeks, while the eggs in an advanced state of incubation were found between 10th and 25th of the month.

In July I had not much opportunity for nesting in the groves until after the middle of the month, but during the last fortnight I found fourteen nests and out of these five found on 16th July contained fresh or practically fresh eggs, eight found from 17th July onwards contained eggs in an advanced state of incubation besides which several of the clutches taken at the end of the month had been abandoned.

The latest fresh eggs I found were a clutch of two on 22nd July, while the latest clutch was one of three bad eggs taken on 9th August.

Now, having enumerated some breeding dates with a good deal

of care, I would like to mention a few facts about the size of clutches. Five eggs in Palestine is most unusual and not likely to be found except in the beginning of the season, in fact, out of a very large number of nests examined, I only came across a single clutch of five eggs, and that curiously enough was the very first complete clutch of the season. Sets of four are very common, but it is rather hard to say whether four or three eggs is to be considered the normal clutch, as threes are very common and of course preponderate later on in the season, when it is also not uncommon to find a bird incubating only a couple of eggs. I will just enumerate clutch numbers by months and leave my readers to judge for themselves.

			5 eggs.	4 eggs.	3 eggs.	2 eggs.
May 1-15	...	...	1	10	9	-
May 16-31	...	...	-	11	8	3*
June	...	...	-	2	9	4
July	...	...	-	-	9	5

* Two of these clutches were taken before the bird was known to have finished laying.

Next I will give a description of the nests and actual breeding sites, but before doing so a short note of what is actually found in an eucalyptus grove is essential, as the uninitiated will probably think of the huge trees which we commonly know as "Blue Gums." As the forests of Palestine were for the most part cut down long ago, the present day inhabitant of the coastal plain has to grow his own fuel, so all over the plain amongst the orange and almond groves are dotted copses and spinnies of eucalyptus, each usually a few acres in extent. Directly the trunks of these trees have attained a diameter of about a foot they are cut down at various heights above the ground. I have seen trees treated in this way both at the ground level and also as much as three feet above the ground and stumps of any length of course continue to grow. The peculiarity of the eucalyptus is that one has not destroyed the tree by lopping the trunk in this manner, and by careful cultivation and pruning, after several years have elapsed, an entirely new trunk will be growing out of the stump, and in time will attain the same dimensions and almost completely join up with it. However, that is quite another story, and I must get on with an account of the foliage which grows out of these lopped trunks. In the first year or two it is very thick and bushy, after which it grows taller and less profusely—then some

trees are only pollarded and have excellent hollows at the top of the trunks. Others have deep hollows almost on the ground, where two or three large trunks have grown out of the old stump, while many have ideal hollows in the forks between large branches growing upwards from stumps cut at varying heights above the ground. We have therefore a diversity of excellent and attractive nesting sites. "*Agrobates*" seems equally partial to the lot.

In 1920 I recorded nests as follows:—Eucalyptus 41, orange 1, almond 1, mimosa 17, and cactus 10.

The majority of nests that I examined were well concealed, and those in more open surroundings were, to say the least of it, inconspicuous and hardly any were conspicuous and really obvious.

Under this last category I could name several nests placed low in mimosa hedges which were as large as nests of the British Song Thrush and could not possibly be overlooked. Another large untidy nest was placed in the bare fork of a tiny almond tree, not a foot above the ground, and was visible at a long distance, being at the edge of a grove.

When placed in cactus the nest is conveniently built in the angle of a leaf or couple of leaves, growing slightly upwards from the large woody trunk. I am sorry Captain W. M. Congreve should have gone in for that very painful recreation of "cactus-crawling" in South Spain, when searching for nests of this species, as I never found these birds breeding in the centres of even the broadest hedges, and their nests always placed on the outer edges, though inconspicuous, were not hard to discover. The bird sits tight and motionless and this helps to protect it except from the keenest eyes. Often, when peering into the dark recesses of the thick and parted foliage of a bushy eucalyptus, I have started back at what I thought was a snake peering up at me.

This bird with brownish head and yellowish eye-stripe, when sitting in thick cover, has a habit of stretching its neck and twisting it about in most snakelike fashion in the direction of the intruder, and having failed to frighten him away by this pantomime then flies off. I have practically never seen these birds during the operation of nest building and they do not give away their homes by constantly visiting them when the eggs are laid or when the hen is sitting.

The nests are peculiar in that they are quite the most loosely constructed of any species I have ever examined. They are not

interwoven, as in the case of most other birds, but just put together, hence it is quite impossible to remove a nest "in toto," as, once lifted out of the original site, it straightway falls to pieces.

Materials used for the nest are principally dead grasses and bent straws and rootlets. The egg cup is usually of softer and finer materials of a similar nature and the nest foundation often consists of a thick layer of dead leaves. I must add that in 90 per cent. of the nests I have seen, there were pieces of snake skin amongst the lining at the bottom of the nest.

Nests varied much in size from large untidy structures, conspicuously placed in hedgerows, to neat cups with but little foundation and not much bigger than a small nest of the Spotted Flycatcher. In all situations nests varied from practically the ground level to a height of nearly 6 feet. I have seen old nests in holes in the sides of banks and ditches alongside hedges.

In 1918 I found four nests in the Judean Hills at the end of May, all in low scrubby bushes, thorns or brambles. Two were 1,300 feet above sea level and two at 2,500 feet. The internal measurements of the cup of one of the nests found in the hills was $2\frac{1}{2}$ inches by 2 inches by $1\frac{1}{2}$ inches, and I would like to say that all four nests were so well concealed in thick cover that if the sitting bird had not flown away when the cover was shaken in all probability I would never have spotted the nests, which were built into lumps of flood debris and collections of old leaves, etc.

Later on, in the first fortnight of July, several nests were found in the coastal plain near Jaffa. The majority of the eggs were in an advanced state of incubation though a few fresh ones were taken at the beginning of the month.

Nests were chiefly in orange trees in the groves, a few in mimosa hedges—some others low in thick cover near the River Auja, and one nest curiously situated in the middle of the thick overhanging foliage of an olive tree, and placed nearly 7 feet above the ground.

The internal measurement of the cups of two of these nests were respectively: $2\frac{1}{2}$ inches by $2\frac{1}{2}$ inches by 1 inch and $2\frac{1}{2}$ inches by $2\frac{1}{4}$ inches by $1\frac{1}{2}$ inch.

No measurements have yet been taken of any of my 1920 eggs,

though the measurements in inches of my 1918 lot may be of interest :—

Measurement.				Size of clutch.			
·92	×	·66	...	...	...	...	1
·90	×	·61	...	...	...	...	1
·895	×	·6275	...	...	...	...	4
·885	×	·625	...	...	...	...	2
·873	×	·657	...	...	...	...	3
·87	×	·645	...	...	...	...	2
·8625	×	·6425	...	...	...	...	4
·86	×	·63	...	...	...	...	1
·86	×	·61	...	...	...	...	2
·85	×	·62	...	...	...	...	2
·84	×	·64	...	...	...	...	1
·805	×	·615	...	...	...	...	2

Average of total, $\cdot 868 \times \cdot 63$. Maximum length, $\cdot 94 \times \cdot 62$. Minimum length, $\cdot 78 \times \cdot 62$. Maximum breadth, $\cdot 92 \times \cdot 66$. Minimum breadth, $\cdot 83 \times \cdot 61$.

It is curious that all the largest eggs were found in the hills, and also that practically the largest egg should be the broadest. In colour there is a good deal of variation—but the majority of eggs are whitish in ground colour, finely but thickly spotted and speckled all over the surface with various shades of brown and chestnut, and with shell markings of different shades of grey—purplish grey and slate—which are equally well distributed all over the egg, though these shell markings are apt to be more profuse at the larger end.

Many eggs are almost indistinguishable from those of *Motacilla lugubris*, while the majority resemble those of *Passer domesticus*, though the surface markings are usually of a brighter brown. The chief variations are in the ground colour, which in a good many clutches varied from a pale greyish-green to quite a marked blue-green tinge (but eggs in one clutch rarely vary), and in the surface markings, which are occasionally collected chiefly at the larger end, and often are large elongated spots of a bright umber-brown colour instead of the finer spots and specklings, but all eggs are marked all over to a certain extent. Ring markings consisting of a profusion of spots at the larger end are most unusual, though sometimes a faint greenish ring is discernible near the smaller end, due to an abnormality in the pigmentation.

I would not call this species shy, as is sometimes stated, in fact it is frequently rather Redbreast-like in its fearlessness and confidence in man. Its song is beautiful and quite a joy to hear throughout the early part of the summer, for it quietens down after the latter part of June, but the truly pleasing feature of the bird life in Palestine is the fact that there are plenty of birds, in actual numbers and also a good many species, which really do sing well, a great contrast to such countries as Egypt, Mesopotamia and India. Two broods are most certainly brought up in the season, perhaps more, though I am inclined to doubt it, as late nesting birds have probably lost previous eggs or broods for some reason or other, though my experience was that the human factor in such cases was a negligible quantity and it was only the War which brought in its wake the ornithologist, and even then there were precious few of them about. I have mislaid my notes about the departure of this bird but the majority had left by the end of July, though I did see an occasional straggler in the middle of August (one was noted at Jericho, in the Jordan Valley, on 15th August, 1920) and even at a later date in the coastal area.

Before closing those lengthy notes on "*Agrobates*" I would like to mention that I found a good many nests of *A. familiaris* in Mesopotamia during the seasons 1916 and 1917, and the normal clutch out there was five eggs. It would seem, therefore, that it does not necessarily follow that a bird reduces the size of the clutch it incubates because the climate is exceptionally hot, for that of Palestine was nothing in comparison to the intense heat of Mesopotamia. The size of the clutch I imagine, is much more likely to be dependent on the question of food supply.

Sylvia communis.

I have found the Common Whitethroat breeding both in the Judean Hills and in the coastal plain. It is a summer visitor and usually brings up a couple of broods in the plain, but I have not enough data in this respect for the hills, as I only found one nest there and that contained newly hatched young (2nd June, 1918). In 1920 in the coastal plain, I found the low and somewhat open scrub cover in the vicinity of the marshes a certain haunt, though one or two nests were taken in the bushy foliage of low, pollarded eucalyptus in groves, and one early nest was found in a small bush amongst green crops on a vast dry plain. Nests were well concealed

in most cases and the bird sits tight until one is right on top of the nest or until the surrounding cover has been disturbed. Nests with eggs were found as follows :—

- 19th April, 1920, 1. Fresh. Low bush in crops on dry plain.
- 16th May, 1920, 5. Few days. Low scrub cover in dry marsh.
- 16th May, 1920, 5. Fresh. Low scrub cover in dry marsh.
- 16th May, 1920, 5. Few days. Low in grass and aquatic vegetation in a marsh.
- 23rd May, 1920, 5. Hard set. Low scrub cover in dry marsh.
- 23rd May, 1920, 4. Few days. Low scrub cover in dry marsh.
- 26th May, 1920, 3. Several days. Low scrub cover in dry marsh.
- 9th June, 1920, 3. Few days. In pollarded eucalyptus.
- 16th June, 1920, 2. Few days. Low scrub cover in dry marsh.

Nests did not differ much from those found in England, though all seemed better constructed and more solid. The first nest found, in the crop land, was quite massive and really looked much too large for this bird, but I saw the parents near the nest. In height, they were usually 3 feet or less above the ground, and, more rarely, up to 4 feet. I think the description "fairly common locally," as several nests may be found in one tiny area, and, "generally, though sparingly, distributed, all over the hills and coastal plain," to be fairly correct. I believe several species of *Sylvia* breed freely on Mt. Carmel, near Haifa, though I never had the good fortune to test this information.

On the whole, the eggs found were much paler in ground colour than many specimens I have found in Kent and Devon, a dirty whitish, sometimes tinged green, being the prevailing colour. Five eggs seemed the usual clutch, though birds were found incubating both four and three eggs, but the number of nests found was not sufficient to decide this point.

Whitethroats were first noticed passing through on passage on 22nd February, after which date they were quite common and more especially so in the cover at the edges of the marches. I shot a few specimens which I made into skins. After the end of March, the passage ceased, and the birds remaining to breed were principally to be found in the scrub and cover near the marshland. I have no dates of the departure of this species at the end of the breeding season.

(To be continued.)

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OOLOGICAL NOTES ON SOME OF THE BREEDING BIRDS OF PALESTINE.

By CAPT. C. R. S. PITMAN, I.A., M.B.O.U.

(Continued from p. 24.)

Hippolais pallida clauca.

This is another Palestine species which prefers to lay a comparatively small clutch of eggs, and its breeding season lasts from the first week in May until the about the middle of June. My first eggs were found on the 8th May, and the last on the 25th June. The former was a clutch of four eggs from a compact and strongly built nest of fine grass and vegetable down, placed 4 feet above the ground in the fork of a small eucalyptus sapling in a large grove. I had watched this nest for some time, and after a certain stage it appeared completed, and when day after day elapsed and no egg appeared, I really thought the nest had been deserted. However, this seems to be a regular characteristic of this species, and I have frequently noted nests in all stages of construction left for a week or more before any further addition was made to them, the longest case I have on record being that of a nest which took more than three weeks to complete, and both my Indian egg collectors and myself had really given up the nest as abandoned. Laying is also erratic, as sometimes a day or even two elapses between the laying of eggs and this happened in the case of the first nest I found, the clutch of four being laid over a period of six days. This Warbler seems rather careful in its efforts to conceal the whereabouts of its nest, and, in spite of being constantly in their breeding haunts at all times of the day, I never saw them actually nest building, and if birds are sitting on their nests, they quietly slip off and disappear when the human intruder is still quite a long way off. As this was a trick practised by several of the Palestine grove building birds I soon found out that this hurried departure, which nearly always caught one's eye, was a sure indication of the whereabouts of a nest. When the ♀ was sitting, the ♂ would usually be concealed fairly high above the ground in a neighbouring tree

and singing as lustily as possible. Nests varied much in size and structure, though the materials were usually the same. Fine dead grasses and vegetable down preponderated, the former as foundation and general materials—the latter interwoven and used for the lining which also frequently contained some fine rootlets and an occasional horsehair. All nests had rather a woolly appearance which instantly distinguished them from those of other species. Some nests were flimsy and small, others solid and deep and almost purse-shaped, and this description fitted the majority—others compact and round, and as solid and neat as a well-built Goldfinch's nest. Situations varied in height from 8 feet above the ground to less than 2 feet. Nests were never too easy to see although I would hardly call them well concealed, but their situation and construction both tended towards concealment—so they may aptly be described as very inconspicuous—and no nests were obvious. Eucalyptus groves were sure finds, and usually inhabited by many pairs of these birds. Almond groves were the next popular, while occasional nests were found in orange and lemon groves, peppermint and reed beds, brambles and low scrubby bushes. I found no nests in the very prevalent mimosa hedges, casuarinas, olive trees or vineyards. I will not describe the eggs, which varied but little, except perhaps in size and shape and which did not differ from typical eggs of this species, but I will give a list of actual nests as found in the various types of trees and herbage.

Eucalyptus	...	...	...	26.
Almond	...	...	...	4 with eggs—but also many empty nests.
Orange	...	...	...	6—nests always placed near edge of grove.
Reeds and peppermint	...	...	...	2—placed over running water — also several empty nests. Somewhat gregarious in this sort of cover.
Brambles	...	...	...	2—evidently both nests of one bird.
Low scrubby bush (not 2 feet high)				1—in dried up marsh land.

Eggs in the same clutch show practically no variation whatsoever. The shells are very thin, and before cleaning, fresh eggs

have quite a purplish tinge caused by the colour of the yolk showing through the shell. I have never seen the spots and markings as a ring formation.

Now as to numbers—I never found a clutch of five eggs—but found eight nests of four eggs, though three was the normal clutch, while late in the season sets of two were quite common.

The majority of nests found in the week, 18th to 25th May, contained eggs in an advanced state of incubation. From the above data I think it is fairly clear that in Palestine this Warbler is quite common as a breeding bird, that is, if one knows where to look for it.

The whole of my observations were made in a few large eucalyptus groves, some small almond and orange groves and a rather confined marshy area. All my nests were found in the low-lying coastal plain not many miles from Jaffa, and during the season 1920. In 1918, I found no nests in the Judean Hills during the month of June, although a few pairs of these Warblers were evidently breeding in the gardens in the valleys 10-12 miles north-west of Jerusalem—and later on in July I found some old nests, some empty, and some containing stale eggs, in the orange groves and marshy cover not far from Jaffa. As I have only imperfect data with regard to the arrival and departure of this species, which is of course a summer visitor, I cannot with accuracy fix any dates, but these have been noted in the "Ibis" of January, 1920, by Col. Meinertzhagen. From my observations I have concluded that usually this bird only brings up one brood in the year. I did not measure any of my eggs or nests during the 1920 season—but a couple of eggs taken in July, 1918, near Jaffa were :—

$$\left. \begin{array}{l} .72'' \times .53'' \\ .73'' \times .53'' \end{array} \right\} .725'' \times .53''.$$

The nest measurements were $2\frac{1}{4}'' \times 2'' \times 1\frac{3}{4}''$ (all taken internally).

Cisticola cisticola cisticola.

The first point I would like to note about this species is the very inadequate description of its nests given in the majority of text books and which in many cases is quite misleading. Take, for example, "Its typical purse-shaped nest" as one writer sets down—that is not going to carry one very far—or else, "A neat, deep, purse-shaped structure with the opening at the top,"

followed by a list of building materials, etc. ; this is getting warmer, but at any rate for Palestine the real essential description seems to be omitted. As I have only found the nest of this species in that country I am not qualified to generalise on the subject. If I were asked to furnish information which would materially help in the search for these nests I would tell my questioner to go to marshy areas where these birds were abundant, and they would soon be identified by their peculiar, noisy habits, and by the incessant "teck," "teck," "teck," uttered during their jerky flight. These birds are extraordinarily bold in visiting their nests either during construction or for the purpose of feeding the bird incubating the eggs, even when an intruder is only a few yards away. Now for the nests, what is one to look for ? Do not expect the fairly obvious globe or oval of fine dead grasses of *Prinia gracilis*—nor yet the solid cup of *Acrocephalus streperus*, nor even the neater and softer cup of *Hippolais pallida*—in fact don't look for a nest such as one usually expects to find ! You must look for something in the nature of the gossamer home of a large spider, or the elongated, sausage-shaped web of a host of caterpillars—and of course this is not placed conspicuously in the open, but concealed in the centre of thick grass, often not 2 feet above the ground, and the outside of the nest is thickly woven to a regular screen of grass blades. The length or depth of the nest is generally 4 to 5 inches and the diameter 2 to 3 inches at the egg chamber, which quickly narrows till at the top there is an entrance hole just large enough to admit the parent bird—and this narrowing at the top draws the tips of the grass stems together and forms a little screen or shelter which helps to conceal the entrance. There is therefore no resemblance whatever to the ordinary forms of nest and unless one knows where to look and what to find, there is every possibility of passing by these gossamer-knit structures. The principal nest material is the white vegetable down of aquatic grasses beautifully interwoven and fastened to the growing grass stems—the egg-chamber has also some fine dead grasses in the lining, and one invariably has to destroy the nest to obtain the eggs—while a satisfactory photograph is quite out of the question. With two exceptions I found all nests in thick grass, not more than a few feet high, growing in water and never higher than 3 feet above the ground, and even this height was unusual. I found well over a dozen nests and they were either at the edge of extensive marshy areas, or in the grass

growing in small shallow damp patches not more than 10 feet wide though quite extensive in length—many such places were very favourite haunts and several nests would be found near each other. Many nests are abandoned if the parent birds discover that they are known to the human intruder, and I frequently noticed that a practically completed nest would be dismantled and re-erected not very far away. These birds also have a habit of destroying completely the remains of their nests when robbed of their eggs. The nests suffer a good deal from the cattle which graze in large herds in the marshes during the breeding season.

The nests found other than over running water, were as follows :—One was at the edge of a marsh and in a tuft of grass in the centre of a low and open bramble bush, while the other was in a clump of thistles and withered vegetation on a small mound amongst crops which had just been cut, and with no water within at least half a mile of the locality. In marsh land the sitting bird would invariably give away the position of its nest, if one was quick enough to note its mouse-like departure when one was still 20 to a dozen yards away. The Palestine type of eggs, is the white type, thickly spotted and speckled, principally at the large end, with various shades of red, chestnut-red, lake-red, and purplish-red. Eggs of the same clutch do not vary much—fresh eggs before blowing have a decidedly pinkish tinge due to the colour of the yolk partially showing through the thin shells. After cleaning, the eggs are a dead white. Five seems a normal clutch, but sets of six and seven eggs are by no means uncommon, though I imagine it is somewhat of a task for the minute parent bird to incubate so many and then rear and nourish so large a brood. As few as three eggs only will be laid, later on in the season, after a bird has probably lost one or two sets of eggs.

This bird is a late breeder, the first eggs not being found till the 20th June, when three clutches of five eggs each were respectively fresh, a few days, and advanced in incubation. It struck me that this late breeding was probably due to adaptation to local conditions, for the grassy areas in and about the marsh land are cut for hay at the end of May and early June—and I did not find any nests with eggs nor any started, until after the hay had been cut, and even then the birds kept to the edges or to small damp localities which were not molested by the haymaker. It is not a long breeding season, lasting but three or four weeks, and the

majority of fresh eggs are found during the last week of June. The last clutch found was one of three eggs on the 1st August, but I knew this pair of birds had lost at least two sets of eggs, besides being worried by other interruptions.

I would describe this bird as common, locally, in the coastal plain wherever there is damp marsh land—while nests, being difficult to find, are much rarer than the bird itself. One brood only is normally brought up in the season. I have so far taken no measurements of the eggs in my possession. This bird is a summer visitor at any rate in its breeding localities, and I have not noticed it in Palestine during the winter, though I shot a specimen (probably on passage) in the middle of March in the Jordan Valley just south of the Sea of Galilee.

Acrocephalus streperus.

This species is chiefly noted for the fact that it is one of the latest breeders of all the Palestine birds, and I have found fresh eggs at the end of July. With regard to this species, thereby hangs somewhat of a tale, and if I had only had a little more time at my disposal, and realised earlier that these birds were breeding, I might have obtained a very handsome series of eggs.

On the 4th July, 1918, while encamped near the sources of the Jaffa Auja, a small perennial stream which has a total length of barely 10 miles, some of my Indian soldiers, who were doing anti-malarial work near the river, brought me a nest containing three fresh and well-marked eggs which I felt certain were Reed Warblers, but I was told that the Reed Warbler did not breed there, and that the eggs probably belonged to *Sylvia rueppelli* in spite of the fact that the nest was of the typical Reed Warbler type, and taken from a reed bed by the water's edge. Consequently, when I found myself again in Palestine for a breeding season in 1920, I did not really bother myself about Reed Warblers. I had plenty of work, besides numerous other desiderata, which I knew for certain could be found if I only had sufficient time to spare at the psychological moment, so *Acrocephalus* was completely forgotten.

On the 13th June I thought I would search some thick cover which grew for a length of about 200 yards over a small stream, and to my intense disgust found several old Reed Warbler's nests, a nest containing an egg on the point of hatching out and two newly

hatched young, and a new nest containing one fresh egg. There was no mistaking the nests, eggs and birds, which were all totally different to those of the Olivaceous Warbler which also bred rather freely in this same small area. Even then I did not realise how common these birds were in quite an extensive and suitable locality and in addition could not spare much time for searching for their nests.

For breeding purposes they preferred small reed beds and tiny patches of dense cover over running water, and I never found nests in very extensive cover or in large marshy areas. All nests were firmly woven to reed or peppermint stems, or else to the straight stem of a tall aquatic plant with a pinkish flower—in this latter type of cover I have found nests as much as 6 feet above the ground though 4 or 5 feet was the usual height—and more rarely a nest was placed as low as 3 feet.

Searching for these nests was often full of incident as the thick cover through which we wearily forced a passage abounded with the small open comb-nests of a species of tiny wasp, which did not hesitate to attack the unwelcome intruder, and I have often been badly stung on the face by these infuriated little warriors in the black and yellow jackets—and afterwards suffered from their effects for days! More eggs were found on the 19th June (fresh), 28th June (fresh), 4th July (full fledged young), several nests on the 18th July, in all stages of incubation from fresh eggs to young about to fly, fresh eggs on the 22nd July; several nests in all stages of incubation on the 24th July, and eggs in an advanced state of incubation on the 1st August, besides which a great many old nests were found during this period as well as several broods of young ones seen, which were strong on the wing. The normal clutch of eggs was three—only in one case did I come across a clutch of four, and that was on the 18th July, when a nest contained three full-fledged young and one unfertile egg which I took and successfully cleaned, and I am still inclined to believe that it may have been an odd egg, not belonging to the fertile clutch of three. I am quite sure that two broods are hatched out in the ordinary course of events, but these birds have much to contend with, as, at the end of July or in early August, most of their favourite reedy patches are cut down by the local Arabs while a snake or lizard seems to prey on their eggs a good deal. At any rate clutches of eggs that I have watched, hoping for a fourth egg to be produced

have more than once disappeared in quite an unaccountable fashion. The eggs are some of the most handsome and most interesting that I have found in Palestine, as they really do go through quite a wide range in variation of colour and markings though eggs of the same clutch scarcely vary at all. The ground colour may be white, dirty whitish, greenish-white, greyish-white and almost brownish-white—while the markings are generally profuse all over the egg, and yet occasionally rather sparing, but always in the form of blotches, these being all shades of sepia brown, greenish-brown, grey-brown, and olive with a few black specks and streaks on the surface, and with various shades of grey and grey-green shell spots. The size and shape does not seem to vary much. The nests are unmistakable both as to their situation and construction, and are principally composed of the dead outer bark of reeds and aquatic plants, firmly and solidly interwoven and strongly bound to several upright stems of aquatic herbage and are lined with finer materials of a similar nature as well as fine rootlets and fine dead grasses.

This Reed Warbler if not quickly seen, soon gives away his presence by his noisy habits and almost ceaseless song which he trills away while his mate is incubating the eggs. He never sings far from the nest and is really most obliging, as he frequently goes to see if the nest is still there, and by watching the antics of one of these birds one can usually mark down the position of the nest to within a few feet. When there are young birds in the nest the parents are most arduous in their attentions, and pay not the slightest heed to the intruder—and with a good high power camera one could secure excellent photos with but little difficulty.

I have so far taken no measurements of the eggs obtained in 1920, though the following details of the clutch taken in 1918 may be of interest :—

$$\left. \begin{array}{l} .69'' \times .50'' \\ .69'' \times .50'' \\ .65'' \times .50'' \end{array} \right\} .677'' \times .50''$$

The nest measured $2\frac{1}{4}'' \times 2'' \times 1\frac{3}{4}''$, all internal measurements.

The identity of this Reed Warbler was confirmed by several skins that I sent to Mr. E. C. Stuart Baker, F.Z.S., M.B.O.U., for reference.

I have only met with this interesting little bird in the marshy localities near the coast, and would call it common, though local.

It is a summer visitor. I do not know whether this species breeds in the Jordan Valley.

Before leaving the subject of *Acrocephalus*, I would like to say that there was little doubt that one of the larger Reed Warblers, probably *A. stentoreus*, was breeding in a large bog in the coastal region a few miles south of Jaffa. There were several males singing loudly in a reed bed at the edge of an extensive bog when I visited it at the end of May and in early June, but this reed bed was quite unapproachable being completely surrounded by a liquid black ooze. Similarly, if I had shot any of the songsters I could not have recovered them. Lack of time only prevented me from devising a means of negotiating this treacherous area. This large and noisy Reed Warbler is a summer visitor.

I have no data regarding the arrival and departure in Palestine of the breeding species of *Acrocephalus*.

There is another Warbler present in the marshy localities on the coast during May, June and July—but, owing to its habits, rarely seen, for it lives in the densest of cover and thick tangle of undergrowth, and is rarely seen long enough even to obtain a snapshot at it. Sometimes when offering a splendid target, it has invariably escaped as I have had no weapon at hand! I noticed these birds sparingly though fairly regularly during the above-mentioned months and concluded that they must be breeding, but I never found any nests either new or old which I might allocate to them, and which would have helped to identify the owners. The Warbler I think was a *Cettia*, but failing that may have been a *Luscinola*, though it is possible that *both* may breed in those parts. I say this, as it is in their various breeding localities that racial differences of certain species originate, become accentuated and finally remain as a permanent though possibly trifling variation. Now in the spring of 1920, and early summer during the passage of migrants, I managed to bag a *Cettia* of sorts and a *Luscinola*. The comments of the British Museum were that each showed marked differences to the type species one might expect from these localities—but it was too late for me to try for more. The *Luscinola* apparently approximated more to *L. major* than to *L. melanopogon* which one would have normally expected to find here. Well, it is only a theory, but it may prove to be correct, that each of these birds I shot was the racial variety of its type species which breeds in the marshy areas of the Palestine coast.

Prinia gracilis palestinae.

The Streaked-Wren Warbler is a common resident in Palestine and has been separated racially from *P.g.deltæ* of Egypt proper and the Suez Canal zone. This bird brings up two broods in the season, possibly more—and commences to lay eggs about the middle of April, after which date eggs may be found throughout the summer and even up to the beginning of August. In 1918, this was quite the latest breeding species that I came across in Palestine, but whether this was influenced by local war conditions I cannot say. All the agricultural land near the low-lying areas around the Jaffa Auja had grown to weed, thistles and self-sown crops in which *Prinia* was breeding freely in the middle of July—in fact all my nests were found between the 8th and 15th July—and if I had had more time to spare I might have found dozens more. Perhaps a few dates and incubation notes will be of interest :

	Eggs.	
July 8th, 1918 ...	1	Stale.
July 9th, 1918 ...	3	Fresh.
July 10th, 1918 ...	3	Fresh.
July 12th, 1918 ...	4	Advanced.
July 13th, 1918 ...	3, 5, 3, 3, 2, 3	Respectively, several days, fresh, several days, stale and bad, fresh, fresh.
July 14th, 1918 ...	4	Advanced.
July 15th, 1918 ...	5, 4, 4, 4, 5, 1, 1, 3, 2	Respectively, advanced, fresh, several days, fresh, fresh, stale and bad, fresh, fresh, stale.

Of the above nests two were in pomegranate bushes, one in a bushy damson tree, two in thick cover by the river Anza, and the remaining 16 in thistles, cover, and tall grass in the overgrown fields.

I did not come across this bird in the Judean Hills varying from 2,000 to 3,000 feet above sea-level and situated 10–12 miles north and north-west of Jerusalem, during the month of June in 1918, when I managed to put in a good deal of birds nesting, so was not likely to have overlooked it.

My measurements of the eggs taken in 1918 may be of interest, but I have not yet measured any of my 1920 lot.

Set.	Average Measure-		Set.	Average Measure-	
	ment in Inches.			ment in Inches.	
3	·62	× ·46	1	·59	× ·46
4	·6175	× ·4475	4	·58	× ·435
5	·616	× ·438	3	·587	× ·443
1	·60	× ·45	2	·585	× ·46
3	·60	× ·443	4	·575	× ·45
4	·595	× ·4625	2	·57	× ·44
3	·59	× ·43	4	·5625	× ·46
5	·594	× ·45	1	·55	× ·44
3	·59	× ·46	4	·525	× ·43
3	·59	× ·45			

Average of total, ·586" × ·448".

Maxima and Minima.

·63" × ·44" and ·50" × ·43" ... *Length.*

·54" × ·42" and ·56" × ·47" ... *Breadth.*

In 1920, I found 16 nests with eggs between the 20th April and the 11th July, besides a good many old nests as well as others which contained young birds in all stages. In both seasons I had to practically give up egg work after the middle of July, so my observations are really not quite complete.

During 1920, these notes were made in the coastal plain a few miles south of Jaffa.

I cannot lay down any hard and fast rules which will guide the oologist to numerous nests, as, unlike most other breeding Warblers of this country, this species will breed almost anywhere, except of course on the open ground! However, wherever one sees these birds during the breeding months as noted above, one may reasonably expect to find a nest in the near vicinity—though it may quite possibly be a question of some hundreds of yards—at any rate if they have got a nest they do not go very far away from it. Moreover, they seem inordinately proud of their building capabilities, and like to show off in front of intruders and I have often watched the birds building, with a distance of only a few feet between myself and the nest at which they were working. They will always give away the position of a nest; are by no means shy and often do not leave the nest when sitting until

a finger has been put into the entrance hole. Nests are beautifully constructed of fine dead grasses interwoven with vegetable wool and plant down—and are thickly lined with the latter. They vary much in size and shape—some are almost globular, others elongated ovals, others more sausage-shaped, while the entrance holes are usually at the side, though sometimes almost at the top. Nests in most cases are firmly woven to the stems of plants, shrubs, etc., but I have seen quite a number which have been suspended from mimosa and pomegranate branches as much as 6 feet above the ground, when they are generally very conspicuous, but in most instances the nests are well concealed. Nests are never placed in the middle of thick brambles or dense cover, though often at the edge, and I have found them both high up and low down in mimosa hedges, in pomegranate trees, in the bushy foliage of pollarded eucalyptus, in tiny scrubby bushes barely a foot above the ground in dried up marsh land—in tall grass and aquatic herbage in the actual marshes, in small plum trees; and in the tall grassy cover growing in waste land, along the hedge-rows, in ditches, excavations and other situations of a similar nature. An occasional nest is found in an orange grove, but this is unusual; hedge-rows, etc., and the scrubby cover at the fringe of marshes I can confidently recommend as being the best hunting grounds. Nests are usually placed less than 3 feet above the ground, except when in pomegranate and eucalyptus or other bushy trees, when they are mostly situated at a height of 4 to 6 feet. Although seemingly quite fearless of human beings, these birds scold incessantly on the approach of cats or snakes, and I always knew when a big black Rat Snake (Dhaman) nearly 7 feet long, was about, by the incessant chatter of a pair of *Prinia* which had a nest above his subterranean home, though well out of his reach. These birds have a trick of covering up the eggs with the soft plant down and vegetable wool of the lining during the middle of the day, and leaving the temperature of the air to carry out the incubation, and on several occasions I was nearly caught by this fact, and the first time it was only chance that led me to discover the eggs under a thick layer of soft lining material, as, luckily, I had known that eggs were there a few days previously when they had only just been laid. This habit was occasionally resorted to by Goldfinches in Palestine. It is probably due to this habit that I often noticed that Wren Warblers would scratch out the inside lining of their nests after the eggs

had been taken, probably in a vain endeavour to find the eggs which might have been concealed beneath the soft materials. For such large and neatly built structures the parent birds require but very few days from the time when the first straw is laid till their house is ready to receive the eggs.

Some external measurements in inches of nests taken in 1918, are :—

Length approximately. Inches.	Diameter approximately. Inches.
4	2½
5	3
5	3
4½	3½
4½	4
4	3
5	2¾
6	3¼
4½	3½
5	2½
5	3½
5	4
5	2½
5	4

Five eggs appear to be the normal clutch whether early or late in the season, though birds frequently sit on four eggs and rarely on only three, and no nests were found to contain more than five eggs.

These eggs differ decidedly from those of the *Prinia gracilis* of Mesopotamia and India, in the fact that the ground colour is whitish, buff, pale brownish, pale chestnut and other similar shades instead of pale greenish.

In most Indian and Mesopotamian eggs the markings are distinct and fairly conspicuous, which is not the case with the Palestine eggs, for the surface markings are so fine and thick in the majority of specimens I have seen that the eggs are really suffused with the colour of the surface spots, specklings and streaks.

These markings I have noted as pinkish, chestnut, brownish-buff, yellowish-orange, yellowish-brown, buffish and pale reddish-brown.

Unblown fresh eggs, on account of the yolk showing through the thin shells and thereby tinting them, often appear most beautifully coloured, producing delicate shades of coral-pink, salmon-pink, nail pink, or shell pink—but these attractive colours disappear

and become various shades of buffy-white when the eggs are cleaned. Large spots and pronounced markings are rare—though I found one or two such clutches and in such cases the markings were well distributed all over the eggs. A characteristic form of marking is a pronounced ring round the larger end and usually considerably darker than the other colouring.

Though eggs of the same clutch rarely show much variation, these ring markings are not always found on all eggs of a set.

Occasionally the ring has been formed so close to the top of the egg, that it merges into a dark cap instead of a ring—while ring markings round the smaller ends are not uncommon, in fact in one clutch of five that I have, there are two such specimens.

Very pale sets with less pronounced rings are rare, though occasionally found—but I only saw one such set. In this type of surface marking, which as before stated often amounts almost to suffusion, it is only natural that the shell spots, which are of a pale purplish-grey, are practically indiscernible. However, they are nearly always apparent at the larger end of the eggs and show up fairly distinctly in the rings.

Sylvia melanocephala momus.

On the 22nd April, 1920, I took a very handsome clutch of five eggs from a loosely constructed nest of the White-throat type, which was placed 3 feet above the ground in a tiny orange bush at the edge of a grove. The nest was quite well concealed, and the ♂ bird seen to visit the nest, though I did not secure it for a specimen—but I am quite certain that it was *momus*. The eggs which had been incubated for two or three days, are greenish, being boldly marked, and chiefly at the larger end, with spots of sepia and various shades of brown on the surface, and with greyish and pale slate shell markings.

There was but little variation in the eggs of this set. This species is a summer visitor, as are all other representatives of the genus *Sylvia*, which are found in Palestine during the summer months.

This brings to a close my notes on the breeding Warblers—though I believe *S. atricapilla*, *S. rueppelli*, *S. curruca*, and others all breed in Palestine, but I had not the good fortune to find any nests, though I am certain several pairs of *S. rueppelli* were nesting in some of the orange groves that I used to visit—but these birds were few and far between.

AN HISTORIC EGG.

By GRAHAM RENSHAW, M.D., F.R.S.E.

It has long been a zoological axiom that the location of all type specimens—whether in public museums or private hands—should be carefully recorded for the benefit of working naturalists. In conformity with this rule, the writer has pleasure in announcing that he has recently acquired the famous type egg of the Samoan Tooth-billed Pigeon (*Didunculus strigirostris*) brought to this country in 1864 and subsequently described by the late Professor Newton.

The history of the specimen is a romance in itself. Ever since Titian Peale, naturalist to the U.S. Exploring Expedition, obtained in Samoa two examples of "a new bird allied to the Dodo," the interest of scientific men had been powerfully aroused in this rare and remote species; in the words of Dr. Bennett, "The head of a rapacious bird on the body of a pigeon would excite the attention of the most ordinary spectator," and the value of any specimens was soon raised by the report that the unhappy *didunculus* was being exterminated by imported cats. Many persons had inquired at Apia for the rarity, offering high prices for it. Dr. Bennett of Sydney was prepared to pay £5 or even £10 for a pair of skins, and the living bird was all but unobtainable.

At last, after *twenty years* of unsuccessful effort, Mr. Williams, British Consul at Samoa, acquired a young bird which he sent alive to Sydney; this being subsequently joined by an older individual, brought over by the Rev. Rigg. Dr. Bennett bought both birds for a high price, to present to the London Zoo. In view of their great rarity he had them sketched from life, lest they should not long survive; and it was well that he did so, for the second one died of fits and was promptly interred in spirits for Professor Owen, the anatomist. The survivor left Sydney on 12th January, 1864, under the care of a steward named Broughton, who had already had considerable experience with birds. Dr. Bennett's confidence was justified, for the *didunculus* arrived in London safe and sound; on the voyage she had laid an egg (the first egg known to scientific Europe) and this egg was given by Broughton to the late Mr. A. D. Bartlett, then superintendent of the Zoo. The data ticket now before the writer is inscribed in Mr. Bartlett's handwriting "Tooth-billed Pigeon, *Didunculus strigirostris* laid on board the La

Hogue, 1864, and presented to me by Mr. Broughton. A. D. Bartlett."

The egg measures 1.78 by 1.16 inches, and in general appearance suggests a dwarf wood-pigeon's. In 1865, Professor Newton stated the colour to be greenish-grey; such at any rate is no longer the case, the entire surface now being dull white, faintly glossed like that of a Dipper; there is none of the polish characteristic of our native pigeon eggs. The specimen is well blown, with a single hole in the side, the aperture being so large as to suggest a somewhat advanced embryo, while numerous nest stains and also the dullness of the shell suggest at least some attempt at incubation; the bird, one recollects, had a companion—perhaps a mate—while under Dr. Bennett's care at Sydney. Be this as it may, the specimen remains an interesting memento of the middle of the last century, a valuable and characteristic souvenir of two famous Victorian naturalists.

FURTHER OOLOGICAL NOTES FROM SPAIN.

By CAPTAIN W. MAITLAND CONGREVE, M.C., M.B.O.U.

I am afraid my experience of Savi's Warbler, *Locustella luscinioides* (Savi) is somewhat limited, but I have once had the good fortune to meet with this bird in its breeding haunts, and I spent a morning looking for nests. They appear to be extremely local and one does not meet with them necessarily in swampy ground just anywhere in Spain. The place where I met with them breeding is the same as that described by the late Colonel Irby in his "Ornithology of the Straits of Gibraltar," and there, I should say, they are common, but so intensely dense is the great area of matted cutting-sedge that one can make no approximation as to whether they are really common or not. One occasionally sees a bird darting across an opening or sitting on a rush or sedge as it reels out its monotonous song and of course they can be heard, but the note, like that of the Grasshopper Warbler, *Locustella naevia* (Bodd.), is not a powerful one, and it is necessary to have a windless day in order to hear it clearly, and then it is well-nigh impossible to tell exactly from what spot it emanates. It was on 14th May, that I hunted for nests of these elusive birds. Hunting for them, it may be said, is almost as bad as hunting for the proverbial "needle in a haystack," and

as far as I was concerned meant methodically parting sedge as I tramped about over an acre or two of swampy ground. Gloves are of course a necessity unless one is prepared to have ones hands cut about by the sedge.

My first find was after an hour or two and when I was beginning to think it a hopeless business. I suddenly saw a pair of birds, which I presumed were Savi's Warblers, flash across the open and then dive down into the sedge not far away from where I was standing. I marked the place as carefully as I could and then proceeded to beat the sedge with a stick about where I lost sight of the birds. Suddenly out popped a bird from under my stick and, on parting the sedge, I found a beautiful little nest well down in the sedge and about 1 foot above the water of the swamp. I call it a beautiful nest because, although made entirely of loosely woven dead sedge, it was very neat and deep and looked very compact. However, on removing it, it promptly commenced to become unwound and fall partly to pieces. This nest contained four extremely incubated eggs of the usual type, *i.e.*, buffish-white ground colour, very closely spotted with small greyish and brownish spots which formed a slight zone at the large ends.

Shortly after this I saw another pair, apparently busy collecting food or nesting material, and soon saw that they made for a particular spot and there I found a nest in the same sort of situation as the last, containing two young with feathers well formed and three unfertile eggs. As my time was limited I had shortly after this to leave the swamp, but I have no doubt that it was only a question of time and patience to find more nests. The best date for fresh eggs would appear to be during the first week of May, and I have no doubt they can be found in many places where there are dense sedge beds. I cannot say I have ever found them actually breeding except in the one place, but I saw and heard them in one other near Gibraltar in 1911, but in this same place they were not present, as far as I could see or hear, in 1920.

Cetti's Warbler, *Cettia cetti* (*Marmora*) is a common bird in Southern Spain, and its remarkably loud and distinctive note once heard should never be forgotten. It is a bird that invariably, in my experience, frequents the vicinity of running water and wherever one comes across dense vegetation, particularly tamarisk, bramble or bamboo, near water, there one can be almost certain of hearing the curious song. It is an extremely difficult bird to

see, but one occasionally gets a fleeting glimpse of a nightingale-like bird. I know of no bird that is more difficult to get a good view of, let alone shoot, if one is minded to obtain a specimen. All nests I have found have been in brambles or thorny creeper, sometimes intermingled with dead rush, growing on the side of, or actually over, some running water. The nest is not easy to find, for the simple reason that the thickets which this species frequents are often so dense and thorny as to be almost impenetrable. My solution of the difficulty was to wear my oldest, but most thorn-proof, clothes, gaiters and gloves, and carry a big hunting knife, to slash my way through the matted brambles. At the same time I slowly struggled along the bed of a 2-foot wide rivulet which ran through a dense wood of alder, etc., growing in very damp ground. I only came across two new nests on this particular day (12th May). I found first an old nest of what I presumed to be a Cetti's Warbler, and this was supported on bramble growing over the rivulet and gave me the necessary clue as to what to look for. Shortly afterwards I came on the two new nests one after the other, and about 100 yards apart. In each case the nests were perfectly easy to see *when* I had hacked my way within say, 10 feet distance of them. The first nest was supported in dead rushes and brambles, and was actually right over the centre of the rivulet, and about 4 feet from the surface of the water. The other was in bare thorny creeper falling from an overhanging tree, and was on the very edge of the rivulet, and again about 4 feet up. In this case the cock bird gave the show away by singing from near its nest, so all I had to do was to pay particular attention to the place where I thought the song came from. The first nest contained four nearly hatched eggs and the second three considerably incubated ones. The nests were made of marsh grasses lined with finer grasses, and a little piece of cotton grass here and there. They were fairly deep and moderately neat. The only other new nest I have ever come across was in bramble growing beside tamarisk, on the banks of the River Guadalquivir below Seville, and this contained three highly incubated eggs on 22nd May. From my limited experience of this species I should say that the proper time for fresh eggs in Southern Spain is normally the first week of May, if not the last week of April. Four is the usual complement, three not unusual, and five I have not met with, but understand it is not rare. [In "*Aves de España*," Arevalo y Baca, we find it stated that the bird lays "*cuatro huevos a lo*

mas " (four eggs at the most), and that laying is commenced at the middle of May, continuing until the middle of July, and that it nests amongst the tamarisks (" tarays ") and always immediately on the rivers.—Editor].

Methodical hunting in clothes that one can afford to have badly torn (I tore my clothes nearly to rags) not forgetting gloves and, if possible, a billhook, in dense bramble thickets where one hears the bird singing, seems to be one of the best ways of tackling the nests of this species in Southern Spain. The wonderful brick-red eggs (which I find do *not* fade noticeably), are of course unmistakable, and identification therefore presents no sort of difficulty.

Melodious Warbler, *Hippolais polyglotta* (Vieillot) is quite a common bird, but it was only in May, 1920, that I really got to know it. In 1911, I found a deserted nest containing three eggs at the end of a quince bough on the edge of a swamp near Seville and I imagined, especially after that, that it was a swamp-loving bird, but I now know that it is not necessarily, if at all, a swamp frequenter. This year I met with any number of breeding pairs, and they were invariably on dry ground in cork woods wherever there was an open glade in which gorse and other bushes grew. The song and the bird are conspicuous enough, but I am not prepared to say that I know the difference between this species and its near relative of more northern climes—the Icterine Warbler, *Hippolais icterina* (Vieillot) which I found commonly in Northern France while there during the War. Where these two species overlap it must be somewhat difficult to identify any nest found, but the nests I have found in the two remotely divided districts of Northern France and Southern Spain have been dissimilar, and the eggs of the Melodious Warbler are distinctly smaller on the average, but if several lots of eggs were mixed, I should not care to try and separate them. All the nests I found this year were, with one exception, in gorse bushes and about 2 feet from the ground, and fairly well concealed—the exception was in an evergreen shrub of sorts. About 20th May seems to be a good date for fresh eggs. The nest is very deep and neat, and often whitish looking on the outside owing to the outer covering being of dead grey-white thistle leaf. However, this is by no means invariable, but all nests found contained a certain amount of plant down and were made of fine flowering grasses, lined with finer grasses and a small amount of white plant seed which resembled dandelion. The Icterine Warbler

nests I found in France were very similar, but usually much whiter outside owing to the use of spiders' webs and sometimes light coloured feathers and willow-down. They were also usually lined with white hair, and I have not noticed hair in the lining of Melodious Warblers' nests. The Melodious never, in my experience, mimicked other birds, while the Icterine Warbler is a marvellous mimic. Four is the normal complement of eggs for the Melodious, and I twice found five. All the nests were found without difficulty by beating gorse bushes where I saw birds of this species flying around.

The Western Olivaceous Warbler, *Hippolais opaca* (Licht.), is a near relative of the Icterine Warbler, and I believe it to be a common bird in Southern Spain, but in 1910 and 1911, owing to my ignorance of the fact that such a species existed at all, and also to the fact that it is a late breeder, I never found a nest or got to know the bird. Between the 20th and 26th May, 1911, four lots of eggs were brought to me, when staying on the banks of the River Guadalquivir below Seville, by small boys. Each set consisted of four eggs, and they were all fresh. In my ignorance I imagined them to be eggs of the Melodious Warbler, in spite of the ground colour being grey-white instead of a delicate pink. On getting home, I soon had my error pointed out to me by a well-known oologist, and there is really no difficulty in identifying the eggs by their appearance. I imagine that below Seville they nest in orchards and gardens near the banks of the River Guadalquivir.

Of the *Phylloscopi* I mention the Willow Warbler, *Phylloscopus trochilus* (L.) and Wood Warbler, *Phylloscopus sibilatrix* (Bechst.) in order to say that, whatever may be stated to the contrary in Irby's "Ornithology of the Straits of Gibraltar," or in other works, I am unable to agree that there is the slightest sign of either species breeding anywhere in Andalucia. I know both species extremely well, and spent a month in 1920 in a perfect wood for the *Phylloscopi* and never saw the slightest sign or heard a note that resembled these two species of Warblers.

The Chiffchaff, *Phylloscopus collybita* (Vieillot), is a common breeding species and I should not mention such a well-known bird in these notes if it was not for the fact that, although the South Spanish Chiffchaff is similar in appearance to the typical species, it differs very appreciably in note and eggs. The note I cannot describe clearly, but what strikes one at once is the absence of the

"chaff" in the well-known "chiff-chaff" refrain. Instead of the second note there is a series of four or five descending ones, and any ornithologist who knows the notes of common birds can at once detect the difference between this bird and its British representative. The nests I found in the last two weeks of April were typical Chiffchaffs' and were suspended in brambles or brambles and fern about 1 to 3 feet from the ground. The eggs were either four or five in number, and all the eggs I have seen are remarkable for the fact that the spots are larger as compared with those found in Britain and are more evenly distributed all over the eggs. They are also much lighter in colour, in fact the spots in one case were quite pink, and the eggs greatly resembled those of certain types of the Willow Warbler. Never have I seen the typical very dark, small and almost black-spotted type that we have normally in Britain. I am glad to say that my friend, that well-known ornithologist Captain Hubert Lynes, discovered these differences in the Spanish Chiffchaff independently of me, near Gibraltar, some years ago and wrote a paper on the subject for the "Ibis." The result of our independent observations is that we both completely agree as to the differences I have endeavoured to describe. The only solution I can offer for these differences, is that presumably the Andalucian Chiffchaff is a resident and is gradually becoming a sub-species, but has not yet differentiated from the normal type except as to note and eggs.

Bonelli's Warbler, *Phylloscopus bonelli* (Vieillot) is extremely common in South Spain and takes the place of its more northern relative, the Wood Warbler. In some ways they are not unlike and the song of the former has a distinct family resemblance to that of our own bird, but it is rather a feeble imitation without any of the shivering trills of the Wood Warbler. The ten nests I found in 1920 were in almost every case extremely well concealed on trackside banks in a wood (tracks formed by mules and rains), but two or three were on slightly sloping banks among trees in the wood, and one was practically on the flat ground in the same wood. Many of the nests were extremely sketchy, and when placed in a natural recess had very little dome. Absolutely no feathers were used, and in many cases there was no hair in the lining. The normal lining was of fine fibrous black rootlets. In the few cases where there was hair there were only a very few strands, and it was always black. Nests were easy enough to find by noticing any bird that sounded its mournful alarm note (different but not unlike the Wood

Warbler's) between 6.30 to 8 a.m., and 5 to 6 p.m. The alarm note always appeared to come from a bird, presumably a hen, that wished to go to its nest. Any bird returning to its nest to sit, always tried to drop almost vertically on to it from a tree or bush above—sometimes a drop of 10 feet or so, but in many cases there was no vegetation of any height above the nest and the drop was a very short one of a foot or so. Needless to say a sudden drop from a tree or bush should always mean a certain nest. My dates for eggs were as follows:—16th May, c/5, c/5 (nearly hatching), c/5 (considerably incubated); 19th May, c/5, c/5 (incubation slight); 20th May, c/5 (nearly hatching); 23rd May, c/4 (incubated two days); 25th May, c/5, c/5 (incubated 1 day), and c/4 (incubated 2 days).

I am nearly certain that the three nests of 28th May, were the second nests of the three lots of 16th May, as each nest of those of the 28th, was within 15 yards of those of the 16th. On 17th May, these presumed second nests were being built in a great hurry. Quick work to build and lay a full clutch of eggs in 11 days, and curious that all three pairs should complete their several tasks in exactly the same time!

The eggs of Bonelli's Warbler that I found were much like Wood Warbler's, but on an average decidedly smaller, and the spots have a more ruddy tinge.

The only other Warblers I have met with breeding in Spain are the Great Reed, Reed, Blackcap and Whitethroat, but as they are well-known in England, except the Great Reed, I do not propose to say anything about them except that the Great Reed, *Acrocephalus arundinaceus* (L.) appears to be only locally common, nests in colonies and has normally five, and sometimes six, eggs about 20th May.

If any reader of these notes meets with the Sedge Warbler, *Acrocephalus schoenobaenus* (L.) or Aquatic Warbler, *Acrocephalus aquaticus* (Gm.) or Garden Warbler, *Sylvia borin* (Bodd.), breeding in Andalusia he will be doing useful work for ornithological science if he records the same. It has been stated in print that the Aquatic and Garden Warblers do breed there, but neither I nor anyone I have met, who has worked there in recent years, has ever found either of them in the breeding season.

NESTING OF THE GREAT TIT.

(*Parus major newtoni*, Prazak.)

By THE EDITOR.

On 24th May last a nesting-box near our house was observed to have, in the morning, two eggs of the Great Tit laid merely on the "floor" of the box with but the veriest beginnings of a nest in the box. By the morning of the 28th idem the nest was found to be completed and the ♀ was sitting upon seven eggs.

A still more curious incident in the life history of the Great Tit was observed in 1918. On the evening of 16th May we peeped into a nesting-box containing nine young Great Tits almost ready to fly, and we looked down upon what looked like a quilt of plumage, the nine little ones being arranged most neatly in three rows of three each. We were away from home until the 31st day of the same month when, walking round the garden in the evening we chanced to peep into the same nesting-box again and saw, to our astonishment, a Great Tit sitting. Feeling sure that she could not be brooding the little family last seen in the box we put her off and found that there was a new nest which contained nine eggs. We supposed that these eggs could not have been the produce of the former tenant of the box, but in any case the incident seemed extraordinary for the first nest must have been pulled out, the new one built, and the nine eggs laid, all inside fifteen days. We did not take any of these eggs, and cannot therefore say how long they had been incubated.

Modern methods of egg blowing are still unknown to some collectors in out-of-the-way places. Some "two-hole" eggs recently received from Brazil exhibit, nevertheless, the most perfect and careful blowing we have ever seen. The two holes are both in the centre of the sides of the eggs, and the smaller of the two is in most cases so small as to be almost invisible, and so small that one wonders if any air could enter by it. Even the larger of the two is smaller than some of the smallest we have seen in "one-hole" specimens. Notwithstanding the smallness of the holes all the specimens appear to be perfectly cleansed and free from even the lingering deposits of yolk sometimes seen round the holes.

A correspondent in the Philippine Islands states that for some reason or another there is a great difficulty in finding eggs in the islands. One trouble is that the vegetation is very rank, and another that there is no well-marked nesting season as in temperate climes, and no month in the year when some birds are not nesting. Our correspondent states that the European Tree Sparrow (*Passer montanus*), which has been introduced, is doing fairly well in the vicinity of Manila and also in Cebu.

A copy of Mr. Francis Edwards' latest list of ornithological works, just to hand, includes many of great interest to the oologist both in the United Kingdom and abroad. One wonders if the time will ever return when really good scientific books can be produced at the prices prevailing before the war.

Apropos of books, we are often asked to recommend a concise work on British birds and eggs for overseas oologists. In such cases we usually suggest Mr. Coward's most excellent two-volume work (cloth, 25s. net). With the exception of the poor quality of the illustrations of eggs there is nothing else anywhere approaching it. The coloured illustrations of birds are beyond praise, and the many photo illustrations of nests *in situ* are extremely good also.

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A BIRDS'-NESTING TRIP TO ANDALUCIA.

By H. KIRKE SWANN, F.Z.S., M.B.O.U.

My trip to Spain this year was much more fortunate than that of last year, chiefly because I had more time and was consequently able to get further afield and do more observing and collecting. I was also fortunate in being able to get to the Guadalquivir and the Cotos, the most desirable of all collecting grounds in Spain.

I left London on 31st March, a week later than last year, and, travelling by the same route, reached Madrid on 2nd April, going on to Seville the same evening and arriving at Coria, on the river below Seville, on the afternoon of the 3rd. Here I met my companion, J. H. McNeile. The only birds of note observed on the way were one or two White Storks, *Ciconia alba*, and Black Storks, *Ciconia nigra*, on the river between Cordoba and Seville and a few Hoopoes, *Upupa epops epops*, in the olive gardens.

The next morning we rode out with a Spanish guide to the pine woods, starting at 9 a.m., and riding all day, our mounts being, I think, ex-stalking horses, which were quite incapable of going at more than a sober walk unless constantly urged forward by blows from one's stick. They had their own ideas of pace, and mine took a lot of beating, philosophically, before it could be induced to break into a trot, which it only kept up so long as the stick was applied. They also had a detestable habit of following in a line and my horse was only happy when he could see the tail of the one in front of him. Consequently he took a lot of arm-tiring efforts at the outset before he could be induced to break the line when I wanted to ride off to examine a clump of trees or any other object of interest.

Our guide M——, was a famous fellow. He had been out with many bird-men and was an expert tree-climber, while he knew a great deal about the birds and their particular breeding

localities. His father, I understand, was out with Lord Lilford on the same ground many years before, so the thing was probably born in him.

As we rode up the narrow lanes between hedges of great cacti, 10 feet or more in height, the first object of interest we came to was a last year's nest of the Spanish Raven, *Corvus corax hispanus*, on a big pine from which one of the birds flew, but it was too early for eggs yet.

On entering the pine woods we saw many Black Kites, *Milvus migrans migrans*, and the woods resounded with their cries. We also put up a Common Buzzard, *Buteo buteo buteo*, and saw a last year's nest near by in a pine tree. The mewing of the Black Kite is quite different to that of the Buzzard. The cry of the latter is a clear *pee-you*, while the Black Kite starts with a piercing mewing whistle not unlike that of the Buzzard, but it is followed by three or four tremulous or whinnying notes. Many of the Black Kites were building and the ground below the trees in which the nests were was littered with dropped sticks. Apparently, if they drop a stick they do not pick it up but go to a distance for more. Scattered about the woods also were many parties of Azure-winged Magpies, *Cyanopica cooki*, which flew from tree to tree uttering a low harsh chattering. Very few Hoopoes were seen but we saw one Woodchat Shrike, *Lanius rufus*, perched sentinel-like on a small tree and also observed one Black-throated Wheatear, *Enanthe hispanica hispanica*. We also heard the Nightingale and found a nest of the Spanish Blackbird, *Turdus merula hispanica*, placed on a horizontal branch of an ilex, 20 feet from the ground, like a Mistle Thrush's nest. This local race of Blackbird differs much, in its habits from the English race and has the strange peculiarity of not making a mud wall in its nest.

On 5th April, we crossed the river by ferry boat and rode out across a couple of miles of level land covered with corn and bean crops, the home of the Crested Lark, *Galerida cristata*, until we came to a belt of marsh land on which were a party of five Buff-backed Herons, *Ardeola ibis ibis*. On the rising ground beyond we found the Spanish Goldfinch, *Carduelis carduelis africanus* (?) nesting in the wild olive trees but only found one egg, as the date was rather early. Beyond was a low-lying cattle corral with a shallow stretch of water in the centre, the pastures around which were the home of the Calandra Lark, *Melanocorypha calandra*

calandra. Many pairs were put up and two nests were found after much search, both with four eggs. They were placed under the fronds of a spiny herbaceous plant which the cattle would not touch. This large species has a rather unlark-like appearance on the wing, being of a rather brownish colour and with a short tail. It utters a peculiar warble on the wing, and when disturbed, several pairs fly round in the air over the intruder somewhat after the manner of some of the waders.

We heard the Cuckoo, *Cuculus canorus*, on the way back and also saw a couple of Marsh Harriers, *Circus æruginosus harterti* (?) some White Storks, two or three Spanish Magpies, *Pica pica melanota*, and many Kestrels, *Cerchneis tinnunculus tinnunculus*.

The following day, 6th April, we spent in Seville, but M— went out and got a pair of White Stork's eggs from a nest on the top of a small pine, about 25 feet high, to the west of Coria. This nest was found by McNeile on the 3rd, and it then contained one egg.

On the 7th, we packed some food and bedding on our horses and started out early for the Cotos and the famous Marismas. We rode all the morning through scattered pine woods and open sand hills covered with stunted gorse and other vegetation, with here and there a lone pine tree. Dartford Warblers, *Sylvia undata undata*, were fairly common here and in a tiny gorse bush we found a nest of this species with one egg. Continuing into the pine woods two single Red Kites, *Milvus milvus milvus*, were seen sailing overhead. They are easily distinguished from the Black Kite by the deeper forked and brighter red tail as well as by the large whitish patch on the under side of the wing. The Red Kite in flight is certainly worth more than a day's ride to see and possibly it was of greater interest to us because of its marked scarcity as compared with the ever present Black Kite. We observed many nests of the latter species, some apparently nearly completed. Working on through the larger timber after the luncheon halt, we were for a time unsuccessful. We all three spread out well and knocked all the pine trees which had nests in them without result, until late in the afternoon when we put a Common Buzzard off a nest about 70 feet up in a big pine and got a pair of rather incubated eggs. We also saw two or three Snake Eagles, *Circæus gallicus*, and were shown a new nest of this species beneath which was a feather or two from the bird but the nest contained no eggs. Common Kestrels abounded in these wilds.

Nightfall found us on the edge of the marismas and, to the accompaniment of the mournful hoot of a Scops Owl we urged our weary horses towards a small farm on the rising ground near the edge of the marshes, where we speedily secured accommodation for our horses and, after some parley, accommodation of a kind for ourselves. It was rough but acceptable, for McNeile and I were allowed to spread our sleeping bags on the brick floor of the best parlour, after first enjoying as good a meal as we could make from our stock of provisions. M—— found more congenial accommodation elsewhere, but we were quite satisfied with the seclusion and cleanliness of our selected quarters. Fresh air we got by forcing open the window, but unfortunately we also thereby got night marauders in the shape of mosquitoes. On another intruder, who opened a door in the dead of night and looked in upon me with shining eyes, I need not enlarge, for it proved to be nothing worse than a cat.

Next morning I was out at daybreak and saw a wealth of birds on the marismas. Purple Herons, *Ardea purpurea purpurea*, stood about here and there while Buff-backed Herons, *Ardeola ibis ibis*, stalked under the bellies of the cattle, and ducks of all sorts flew up and down. One or two Avocets were to be seen and many Ravens and other large birds. However, we were not intending to explore the marismas then, so after an early breakfast we went to see first a perennial Raven's nest in a huge pine near the farm. The birds were about but it was too early for eggs. Pushing on to a belt of big timber, under the guidance of a local donkey-man, we put a magnificent Red Kite (Sp. *Milano real*) off a nest about 80 feet up in a huge pine. The local donkey-man went up and found that there was only one egg, which we left, and then pushed on to another tract of big timber. Here we put up another Red Kite from a nest 60 feet up in a tall thinnish pine and got three very handsome eggs. The nest was lined with rags, paper and a large piece of a rush basket. Near by we got another nest of the Common Buzzard with two nearly fresh eggs. As we jogged on, knocking any nest-trees to put off possible birds—for the guides consider it useless to make an ascent unless a bird is seen to leave the nest—we discussed Eagles with M——. He affirmed that Bonelli's Eagle, a well-known cliff breeder, here nested in pine trees, a fact we were extremely sceptical about. Yet presently we came to a huge pine, the biggest in the district, which had a

large nest in the crown, about 80 to 90 feet up, well protected by the main branches which bulged out all round and then to some extent recurved to contain the nest like the fingers of one's hand. I would mention here that there are no lower branches to Spanish pine trees, they are all lopped when the trees are young. Well, we knocked and kicked this tree and out flew an undoubted Bonelli's Eagle, *Hieraetus fasciatus fasciatus*. The incident was most opportune to prove our guide's assertion. The climb was a very stiff one. M—— started with a hobble rope around the tree as well as his climbing irons but, losing one end of it when half-way up, he had to continue without it. The bulging top of the tree was very awkward, but he finally got into the nest and found two little Eaglets in whitish down, possibly a week old, also half a Red-legged Partridge. One we left but the other was sacrificed and I sent it, duly formalined, to the British Museum (Natural History) as evidence of this notable find. *Apropos* of this divergence from the normal nesting site, Col. Willoughby Verner told me recently that he had known of three instances in Spain of the Egyptian Vulture nesting in trees.

Near here we saw our first Booted Eagle, *Hieraetus pennatus*, with white underparts, the phase that seems to be the general one in Spain, and we watched it make a magnificent vertical swoop, presumably at a rabbit. Here also I observed two small uni-coloured falcons flying about in a bunch of pines. They had the size and appearance of *Falco eleonoræ*, but it was impossible to shoot or identify them correctly as we had no weapon with us but a pistol. This species appears to have been observed in Spain by Lord Lilford and by Howard Saunders.* We also saw a solitary Griffon Vulture, *Gyps fulvus fulvus*, one or two of which often wander over from the distant Sierras, several White Storks and a party of twenty or more Buff-backed Herons. Returning along a sandy track McNeile found a nest of the Southern Grey Shrike, *Lanius excubitor meridionalis*, in the lateral branches of a thick wild olive tree, which contained two eggs. Coming back over the marshes we also observed a

* Arevalo states, p. 75, that Castellarnau says that he has seen some examples of this species in the month of October in the meadows of the little villages in the Sierra de Guadarrama, that Vayreda notes it as rare and "de paso" (Spanish = passing by) in Gerona. He states further that "some English authors" have stated that it has nested for about a century on the rocks of Penon at Gibraltar.—EDITOR'S NOTE.

party of Pratincoles, *Glareola pratincola*, which settled on the grass beside the track and were extraordinarily fearless.

On the 9th we went across the river again after Sardinian Warblers, *Sylvia melanocephala melanocephala*, and found three nests, two being in small furze bushes with, in each case, a small tree alongside, and the third in the centre of a bunch of the tall straggling bush, which the Spaniards use for hut-making. We also got two more nests of the Spanish Goldfinch. In the marsh below we found several nests of the Crested Coot, *Fulica cristata*, with from one to seven eggs. The eggs are darker than those of the Common Coot, *Fulica atra*, which frequents the same marsh. Most of these nests had the rushes bent down and intertwined above the nest, probably with the object of warding off Harriers and other nest robbers. We put up a female Marsh Harrier from the centre of the marsh, but a search only revealed an old nest of this species. I have since come to the conclusion that the Marsh Harrier breeding here is Hartert's Harrier, *Circus æruginosus harterti*, of North Africa and not the typical form, and Dr. Hartert is of the same opinion.

Next day we went out to the Red Kite's nest found two days before, with one egg, but finding there was still but one we had it taken and it proved to be much incubated. No one had scaled the tree before, so it became evident that the Red Kite must sometimes lay but a single egg. Returning we found another nest of the Common Buzzard with two incubated eggs and along the edge of the marshes found three nests of the White Stork, two being on the top of old straw stacks, and each with three eggs, while the third was on a large tree growing in the deeper water of the marsh. This nest was an enormous affair, probably 5 to 6 feet deep and appeared sufficient to fill a wagon. It contained two eggs.

We went across the river again on the 11th and saw some more Sardinian Warblers' nests, two of which had four eggs each. We also were shown by a boy our first nest of the Crested Lark, *Galerida cristata pallida*, under a prickly plant beside the track. It contained four eggs.

We left the same afternoon for Seville *en route* for Grazalema in the Sierras, where, however, we did not arrive until two days later, such are the facilities for travel in rural Spain. At Ronda on the 13th, we found Serins, *Serinus canarius serinus*, singing in

the Hotel Gardens and a pair of Lesser Kestrels about the cliff. They chased off a Raven which at one time winged its way near them. A Blue Rock Thrush, *Monticola cyaneus*, was also flying about the top of the cliff and singing on the parapet.

April 14th was our first day at Grazalema and, leaving McNeile to work the lower valleys, I started up the mountain pass with a guide. We soon found a small griffonry consisting of five or six pairs, only just through the pass, and got one egg, which proved to be quite fresh, from a ledge, although all the other nests contained half-grown young birds. Two pairs of Egyptian Vultures, *Neophron percnopterus percnopterus*, also had nests in slight cavities here. One proved inaccessible even to the guide, a good climber, but we got to the other nest in a small V-shaped fissure where the floor was covered with bits of stick, excrement, bones, &c., with a slight hollow in the middle lined with a few old scraps of rag and some hair. It contained a handsome pair of eggs. One Lammergeier was flying slowly along the face of the cliff near here. I found the high cliff frequented by the Black Redstart and the Great Titmouse, well above the tree level.

Next morning the young Spaniard who got me a set of Egyptian Vulture's eggs beyond Benamahoma last year brought me in another set of two just taken from the same nest. They are remarkable as being alike in size, shape, and colouring, yet marked at the reverse ends to those of last year. He also brought in a pair of eggs of the Eagle Owl, *Bubo bubo hispanus*, taken a fortnight before from a nest in a cliff. On the 16th we set out on horseback to Hermita de la Gigante with Francisco Vasquez. It was a grand narrow gorge with great cliffs each side, where a few Griffons and many Egyptian Vultures bred. We picked up a lad at the farm at the head of the gorge as guide and endeavoured to get round the right-hand cliff to where the Egyptian Vultures bred. Very soon, however, we came to a nasty place, and as Egyptian Vultures were not exciting enough to tempt us to be foolhardy, we returned the way we had come, the only nest found being that of a Griffon Vulture with a full-grown youngster in it.

Next day we went across the mountain pass to Benamahoma with horses and a guide. We saw a Golden Eagle, *Aquila chrysaetos occidentalis*, flying round the peak of San Cristobal, but the guide did not know where the nest was. In the woods along the pass we observed several Spanish Jays, *Garrulus glandarius*, subsp.?

Near Benamahoma we visited the cliff, where the set of two Eagle Owl's eggs had been taken. The nest was in a shallow light cave at the very top of the cliff, merely shaded from the sun by two or three small trees growing out of the rocks. It was easy to descend into the cave by the help of one of these trees. The cave still contained a few feathers of the Eagle Owl. A few yards away, and about 10 feet from the top of the cliff was the nest platform of a Griffon Vulture from which the egg, highly incubated, had been taken a few days before. It was composed of a layer of dry grass and small odd sticks, &c., with plenty of the droppings of the old birds, which in the course of years so whiten the edge of the nest-ledge that it can be plainly discerned from below. Another Griffon's nest lower down contained a chick in white down about a week old. This was a small griffonry, comprising only four or five pairs. I noticed that in flight the Griffon Vulture uses its legs in descending, holding them close together stretched straight downwards, perhaps to assist in steering. When actually alighting they are placed more forward and separated. One bird scratched its neck with one leg during flight, an easy performance, perhaps, considering the way it soars steadily on its mighty outstretched wings, which are very seldom flapped in flight. I noticed, too, that the tips of the quills are widely separated in flight. I only once observed a bird make any attempt at attacking when its nest was robbed. This was on the 14th, when my climber went up to a higher nest which contained a young bird, I, meanwhile, being perched in the middle of the cliff where we had just taken the fresh egg previously mentioned. When the climber was at the nest the old bird flew at him repeatedly, uttering a long harsh scream quite different from the hoarse croak uttered not infrequently in flight. The climber considered it somewhat menacing for he commenced hurling all the loose stones he could find at the bird, to my discomfort, for I was almost directly beneath him and two or three hundred feet lower. I therefore fired my pistol at it, when it wheeled near me, and that made it sheer off for a while. Witherby's statement ("Practical Handbook," p. 184), on the authority of Jourdain, that this Vulture is "absolutely silent on the wing" is, in my experience, inaccurate.

There are, I found, in all, seven griffonries, large and small, within 4 or 5 miles of Grazalema, the largest accommodating about 25 pairs and the smallest 2 or 3 pairs.

We slept at Benamahoma on the 17th and went on to the Ridges near Pinar next day, having added my friend of last year, Francisco Chacon Rosa, to our party. We visited several Egyptian Vultures' nests, but some were empty, while in two cases we completely failed to find the nest holes in the broken wooded cliffs, although we watched the birds go in, so cunningly is the nest hole often chosen. Many Sub-alpine Warblers, *Sylvia cantillans cantillans*, were about, and we found one nest, but without eggs.

The 19th I spent in the scrub near Grazalema and found one nest of the Spanish Blackbird with three fresh eggs, and again, there was no mud wall to the nest. I also found a newly completed nest of the Sardinian Warbler. I observed one Woodchat Shrike, some Crested Larks (*Galerida cristata pallida*, I believe), many Swallows, all of which appeared to be pure white below, and several pairs of Red-legged Partridge. Some small parties of Bee-eaters also passed over, flying north, and uttering their liquid call.

Next day I went shooting in the pass above the town. I tried without success to shoot a Spanish Blackbird, but it is one of the most wary birds in Spain and they flew shrieking to the cliffs before I could get within shot. I secured a female Cirl Bunting on the top of the mountain and also observed Spectacled Warblers, *Sylvia conspicillata*, Sardinian Warblers, Crested Larks, one Rock Thrush, Black-eared Wheatears, Linnets, Wrens and Meadow Buntings, *Emberiza cia cia*. Another set of two Egyptian Vultures was brought to me which had been taken from the cliff in the pass. In the evening some boys brought in their hats three eggs of the Black Redstart, *Phœnicurus ochrurus gibraltariensis*, and three of the Black Wheatear, *Ænanthe leucura*, with the nests, but we refused to take them, this being the only way to stop indiscriminate and useless nesting by the local boys.

On the 21st we examined the cliffs close to Grazalema and found an Egyptian Vulture's nest in a small crevice half-way up in a part of the cliff inaccessible even to the goat boys who climb over most of this cliff, nor could we find any practicable position from which a rope could be used, as the cliff overhung the nest. We took two sets of Black Redstart, a 3 and a 5, from crevices in this cliff, one at the foot and one half-way up. The nests were made of moss, grass, wool, down, &c., lined with hair, but sometimes feathers are used for the lining. McNeile also got one set of four Sardinian Warbler's eggs in a tiny thorn bush. From a ruined house we

disturbed a Black Wheatear from a small hole in the wall between the ends of two rafters, and after some trouble extracted the nest with four eggs, somewhat incubated. The nest was made of dry grass lined with feathers, and a few small stones and bits of plaster were placed under the front edge of the nest. In a medlar tree in a garden on the outskirts of the town McNeile got a nest of the Serin with four eggs. The nest was concealed in foliage at the extremity of a drooping branch and was smaller and more shallow than that of the Goldfinch and had no down in it, being lined with hair. In the next tree was a Goldfinch's nest with four eggs, affording an interesting comparison. The Serin's eggs were whiter and more like miniature Greenfinch's eggs. We also found the nest of a Common Whitethroat, *Sylvia communis*, in a bramble clump with six incubated eggs.

The next day I spent shooting on the mountain and got examples of both the Black-eared and Black-throated forms of *Ænanthe hispanica hispanica*: also an example of a species of Crested Lark, *Galerida theclæ*, and a Stonechat, of which there were many but all noticeably blacker in plumage than British examples. I also got the male bird of a pair of Wheatears which struck me as considerably different to ours, which had been previously recorded as occurring here on migration. This pair were on the same patch of ground on which I noticed similar birds last year and I think were either breeding or about to breed. My male bird proved to be an example of *Ænanthe ænanthe nivea*, first described from the Sierra Nevada, and is, I believe, the first authentic example secured from the Cadiz Province, although there is one from Malaga in the British Museum. I have therefore presented it to Tring Museum. It differs from the Common Wheatear in the longer bill, much greater extent of white on the forehead and much purer blue-grey of the upper parts, without any brown shade, while the wings are blacker.

The 23rd I also spent shooting on the mountain and got an example of the local Dartford Warbler, a common bird here, but of a different race to the British form, and also saw a number of Spectacled Warblers, Meadow Buntings and a Rock Thrush. In the evening one of our climbers from Benamahoma brought in another set of two Egyptian Vulture's eggs.

On the 24th we visited the woods towards Ronda with a boy as guide and McNeile obtained a nest of the Sub-alpine Warbler

with four eggs. I shot and identified the bird with certainty, but it was too battered for preservation, so I was unable to keep it to determine whether it belonged to the typical race, *Sylvia cantillans cantillans*, or the North-west African race, *Sylvia cantillans inornata*, as the darker red of the under-parts rather suggested. It is indeed remarkable to what an extent the local birds seemed to be akin to the North African forms rather than to the European.* This nest was in a gorse bush among oak and other trees. We found a second nest in gorse but without eggs, also a nest of the Spanish Blackbird with four eggs, and a nest of the Sardinian Warbler, *Sylvia melanocephala melanocephala*, with five most beautiful erythristic eggs; it was placed in a tiny prickly bush. We also got a nest of four Cirl Bunting's eggs in a thorn bush and a nest of four Blue Rock Thrush in the hole of a wall of a ruined house in the centre of Grazalema. A number of Woodchat Shrikes, *Lanius senator*, were seen this day.

On 25th April I left Grazalema on horseback at 5 a.m. for Montejaque *en route* for Seville, leaving McNeile behind. The day had not broken when I started, and the Scops Owls, *Otus scops*, were calling from the cliff below the town, while almost at the same time a Cuckoo commenced to call also. Not many birds of interest were seen until near by Montejaque, when I observed a party of Bee-eaters, *Merops apiaster*, about the road. Entering my train at 9.10 a.m. I had the good fortune to make Seville, 50 or 60 miles distant as the crow flies, by 5.45 the same evening! I stayed there the night and went on to Coria the next morning. That day I explored the river banks below Coria but found little of

* Paul Gwynne, in his recent work on "The Guadalquivir," writes:—

"When observant people who have been in Morocco or Algeria visit the basin of the Guadalquivir, they are struck by the resemblance of the Andalucian landscape to that of Northern Africa. Here are the same types of hill and gorge, the same patches of rocky desert at higher levels, the same watercourses which run dry in summer, the same cactus, aloe and locust tree. In the *Boletín* of the Geographical Society of Madrid, Don Federico Botella even goes so far as to point out that the fauna as well as the flora of this district are African and not truly Iberian, though it seems to me that fauna have legs which the frowning Sierra Morena could hardly confine to the south. For Botella's argument is that this range of mountains once formed the southern cliffs of the peninsula, and that a channel of the Atlantic separated Andalucia from Europe. Andalucia was then a part of Africa, the Straits of Gibraltar did not exist, Hercules was not born, nor were his Pillars thought of."—EDITOR'S NOTE.

interest beyond a nest of the Nightingale, *Luscinia megarhyncha*, with one egg. I observed several Turtle Doves, *Turtur communis*, and also a number of Bee-eaters on the telegraph wires.

On the 29th I rode out to the pinewoods with M——. Many Azure-winged Magpies, *Cyanopica cooki*, were nesting in these woods, generally in little colonies of half a dozen or more pairs. The nests were in the forks of small pine trees of a height of from 10 to 25 feet, and were composed of pine twigs, moss, bark strips, &c., with a layer of loose dry, powdery, earth, and lined with wool and hair, there being a deep cup-shaped hollow. The sets varied from five to seven eggs in number and were all fresh. Near by the first colony I got my first nest of the Black Kite in a small pine. It was a rough nest of sticks, and contained, as lining, two pieces of white rag and a flattened-out Goldfinch's nest. Farther on we found two more nests, each with two eggs, and both lined with rags, one only having some small pieces inside but a long piece hanging down about 2 feet outside, where it had caught and been left by the careless bird.

On our way home a man took us to a nest of the Raven in a big pine and was positive it was occupied by a pair of birds, but on sending him up to the nest he brought down five handsome eggs of the Common Kestrel. The nest had certainly been newly lined by the Ravens and contained some grains of maize. This day we observed several Hoopoes in the olive plantations.

Next day we rode out to the Cotos again. We found a nest of the Common Buzzard in a 30-foot pine with one nestling and one addled egg, also several more nests of Black Kite, all with eggs and lined with rags, except one, which had a lining of horse-dung and other rubbish. A Booted Eagle, *Hieraetus pennatus*, was flying round in one part of the woods and we found what proved to be the last year's nest, but it contained two eggs of the Common Kestrel. Another set of four eggs of this species was also taken from an old Kite's nest. Several Snake Eagles, *Circæus gallicus*, were seen, and we found one new nest ready for eggs, a quill feather of the eagle being on the ground at the foot of the tree. The flight of this eagle is very leisurely and frequently it quarters the ground like a Harrier. A Golden Oriole was calling in one part of the forest.

The 29th was devoted to searching the more or less barren Cotos for nests of the Spanish Raven, *Corvus corax hispanus*. We

soon put a bird off a nest in a medium sized tree in a small clump of pines, and got six finely marked eggs, but a long search produced only another set of two, although two other nests were found, newly lined with bark strips, hair and wool, and ready for eggs. We also found two other Buzzard's nests, the first with a nestling and an addled egg while the second provided an amusing episode. M—— had approached it while I was engaged in examining an old Eagle's nest in an adjoining tree at which I fired a pistol shot to put off a possible bird. M—— called excitedly to me to say that a bird had stood up on his nest and flapped its wings. I therefore approached and fired a second shot at it, but without bringing off a bird. M—— then commenced to climb the tree but declared that the bird was still flapping its wings. I promptly fired a shot directly at the nest from which M—— presently threw down to me a dead Common Buzzard. Astounded at my prowess with the pistol I approached and examined it and found it to be very much dead, having probably been shot by a farmer some weeks before. The nest also contained one smashed and dried egg. A Mistle Thrush's nest was also taken from a slender pine-tree containing three remarkably blue eggs with purple markings in a zone, more like eggs of the Pine Grosbeak than the Mistle Thrush. I have not obtained skins of the local Mistle Thrushes but they struck me as being browner than our British birds. Beside the track on our way back we got a nest with three incubated eggs of the Crested Lark, *Galerida cristata pallida*, and I shot an example of *Galerida theclæ theclæ*, identical with the form shot on the Sierras.

On the 30th we worked out to the Cotos, far to the south-west of Coria, starting early and reaching the big timber, the home of the Red and Black Kites, by 10.30. Many Common Kestrels were breeding in the old Kites' nests and I obtained several handsome clutches, noting that most of the nests were lined with dry earth. I also got some more sets of Black Kites' eggs, one rather small and shallow nest in a 70-foot pine yielding a very handsome set of 3. This nest was of sticks, lined with cow-dung and part of a puff-ball fungus. We lunched below this tree and then proceeded slowly, tapping the trees which contained nests. The pine belt literally teemed with nests, new and old, most of them Black Kites', which birds we saw slipping off their nests in every direction. Two trees side by side yielded a handsome pair of Black Kite's and a fine set of five Common Kestrel's. A little farther on we came to

our turning point on the edge of a small clearing without having found my special desideratum, a nest of the Snake Eagle. Right before us, however, was a large flat nest up in the bent-over top of a biggish pine. I urged my horse towards it and commenced to strike the bole when out hurriedly flew a long-winged Snake Eagle, dropping a quill feather from its wing in its haste to be away. The nest of sticks was lined with pine twigs and contained the usual single large white egg, very slightly incubated. A little beyond a Long-eared Owl was sitting in the dazzling sun on an old Kite's nest and refused to come off until a shot was fired at her when she flew sulkily away. The nest contained one young chick and three addled eggs which were very much nest-stained. Many Golden Orioles were seen in the forest, uttering their loud clear bell-like song, quite unmistakable when once heard. Coming back by the fighting bull corral we saw a flock of 17 Egyptian Vultures and also a single Southern Grey Shrike, while from a tree beside the track we put out two Black Kites from twin nests almost touching one another. Only one nest, however, contained eggs, a pair, one white, and the other well marked with pale red. This nest was lined with bits of old newspaper.

The next morning, 1st May, my last day at Coria, we rode out to the marsh on the opposite side of the river to look for the nest of the Harting's Harrier we had seen on our previous visit to the spot. On the way we found several nests of the Crested Lark, *Galerida cristata pallida*, all placed in the deep hoof marks of cattle in the dried mud of the track. Some had practically no nest at all, others a distinct nest of dried grass. Arrived at the marsh we worked steadily through it on horseback, a troublesome task as the horses continually endeavoured to make for the parts where there were short young reeds to eat. With a plentiful application of rope-end, however, I smashed my way through and reached the spot where the reeds were tallest, growing perhaps 6 to 8 feet out of the water and here I found the last year's nest of the Harrier. Before, however, I could make a circuit to look for the new nest my horse took fright at a bull, which was struggling through the reeds with a great noise, and headed for the bank. Here I found M—— equally unsuccessful, but at that moment we saw the male Harrier which appeared to have just left the reeds in the centre of the marsh. We then proceeded to the other side of the marsh, and, turning out sundry bullocks, lay down among the bushes to watch

for the bird's return. We lay there perhaps for half an hour watching a Red Kite hovering, and other birds, and then M—— declared that the nest could not contain eggs as we had not seen the bird return. Not satisfied, I insisted upon returning through the centre of the marsh and on arriving at the spot where the reeds were tallest sure enough there was last year's nest again and a minute or two later up flew the male Harrier from the new nest right against my horse's head. It was built up out of the water about 2 feet and was composed of a mass of dead reeds with a few small sticks, the hollow in the centre being lined with the casings of reeds. The four eggs were much incubated and nest-stained. There were many Crested Coots about and I took one set of six eggs and saw also a nest of ten eggs of this species as well as two nests of the Common Coot with five eggs each, and a joint nest containing six Crested Coot's and five Common Coot's, the former being easily distinguished by their darker appearance.

At mid-day we returned to Coria and I left in the afternoon for Seville where I met McNeile on his return from Grazalema. He brought me a couple of Swallows with their eggs from Grazalema to help me in my enquiry as to whether there was any difference between the local Swallows and our North European birds. One was the darkest bird we had seen, buffy-white below, and the other one of the usual white-bellied ones.

The next day I returned to England while McNeile went on to Coria and the Marismas. Of his doings there I am not competent to speak, beyond mentioning that he secured two sets of eggs of the Great Bustard and also some of the waders, &c., while he also got a couple of sets of five of the Lesser Kestrel, one of which he generously presented to me on his return to England, as I had left too early to get eggs.

A REMARKABLE CUCKOO COINCIDENCE.

By G. J. SCHOLEY.

During the nesting season of 1919 a pair of Pied Wagtails took possession of a small chalk quarry, but I did not find them nesting that year. In April of 1920 I noticed with much pleasure that another pair had joined them, presumably by reason of a further opening out of the quarry which by this time extended over roughly

2 acres, being 35 feet deep. There are various water springs all the year round in addition to which the quarry receives the water from the local marshes. This water has to be pumped out daily before the men can get into the quarry from which the chalk is taken for the manufacture of Portland cement. The conditions make an ideal habitat for such a bird as the Pied Wagtail, water life and aquatic vegetation being in abundance. In the early part of May, 1920, I noticed a Cuckoo one morning apparently searching the sides of the quarry with the two pairs of Wagtails in hot pursuit, and I consequently resolved to make a thorough search for their nests. I could find nothing, but continued my search daily as the Cuckoo was still hanging about at intervals. However, there was no trace of Wagtails' nests, so I got my friend Hollands, who had more time at his disposal, to watch proceedings. It was several days after when he came to me and said he had found a nest, but he could not get at it as it was so far under the chalk. I accordingly went to the spot, groped a way into the entrance of the hole, and found a Wagtail's nest with three eggs and a slightly incubated Cuckoo's egg. We thoroughly searched the remainder of the quarry, but could find nothing. Further watchings did not assist us, but I was certain from the movements of the Cuckoo that she must be on egg-laying business. As the time went on we continued our searches, and it was not before several days had elapsed that Hollands found another Wagtail's nest with three eggs and another incubated egg of the Cuckoo. The female Cuckoo put in an appearance frequently onwards, often accompanied by two males, and it was getting well into the season. One evening I saw the hen Cuckoo come over and sit on a hurdle gate on the top of the quarry, where she could get a good view of the neighbourhood. Six or seven times she flew to two different stacks of large flint stones, which she examined very thoroughly, going in and out of several of the recesses between the stones. I remained obscured until she finally left the locality, when I went to examine the two stacks of flints. In one stack I found a Wagtail's nest with three eggs very artfully concealed, but the second stack of flints where the Cuckoo had also been, revealed me nothing, although I was certain it contained a nest. The Wagtail's nest in the first heap got the Cuckoo's egg the next day, one Wagtail's egg disappearing, as when the Cuckoo's egg was found the Wagtail's nest only contained the three eggs, and there were four in the nest that morning

at 9 a.m. We found the Cuckoo's egg at 6 p.m. We continued our search in No. 2 stack of flints, but without result. We saw no more of the Cuckoo after this, but on the 16th July I saw a pair of Wagtails feeding a young Cuckoo. I had been beaten, and they had got this one off somehow, undoubtedly in that second heap of flints—a nest too well concealed for me to find.

I watched the Wagtails with the young Cuckoo with some pangs of regret, even to the extent of going once more to that second heap of flints to see if I could trace the old nest. I remained beaten, fully convinced of the Wagtail's cunning. I could only hope. All sorts of thoughts flashed through my mind, and I wondered whether I should ever have the pleasure of tracing the young bird which had been successfully reared. Nine weary months seemed a long time before anything could be done, but it came at last.

On 18th April, 1921, I was about early, 6 a.m., and had the pleasure of seeing seven Cuckoos sitting on the very hurdle gate from which my Cuckoo had spotted her nest the year before. Here was a problem, but as the days passed by I proved them to be two females and five males. Here again all sorts of things flashed across my mind. Could the two females be my last year's bird and the young bird I had seen with the Wagtails last year? Time had to prove again and on 12th May I saw a Cuckoo hanging Woodpecker fashion on to the steep side of the quarry. With the aid of a ladder I got to the hole, and found a Wagtail's nest with no eggs but apparently ready. This nest had one Wagtail's egg the next day, and on the day after, 14th May, 1921, it contained a Cuckoo's egg, but—it was not by my last year's Cuckoo. All sorts of things again flashed through my mind. During the afternoon of the 14th May I saw a Cuckoo enter a hole under a flint, five or six times. Once she came out tail first. She was in this hole 30 seconds at a time. This hole revealed another Wagtail's nest apparently ready for eggs. On 15th May the Wagtail laid her first egg, and on the 16th this nest had a Cuckoo's egg by the same bird that laid on the 14th.

Where was my last year's bird? I was not dismayed as I continually saw the two females in the quarry. On 4th June I happened to be looking round the quarry, and saw a Cuckoo sitting on a stack of rails. I immediately ran to cover, but she flew off. I gave her time to get right away, then went in search of a Wagtail's nest in the vicinity of the stack of rails. Here I discovered a

Wagtail's nest in a hole in the quarry side just above the rails. I was overjoyed, as this nest contained two Cuckoo's eggs and one of the Wagtail's. One Cuckoo's egg was the same as I had found on the 14th and 16th May and the other was—joy to me—by my last year's bird. Here was the mystery solved at last—mother and daughter back to the old place and using the same nest. At this time we had quite a few pairs of Wagtails about, probably the young from last year's two pairs. Nests, however, were scarce, as the works not pumping through shortage of coal caused the bottom of the quarry to flood to a depth of 14 feet, completely wiping out my Wagtail's nesting places. I decided to rig up a few nesting places for them on the banks above the water line by placing a few large flints together, just sufficient to afford them shelter. One of these was readily occupied, and on the 9th June I saw six Cuckoos at various places on the hurdles above. While watching these I saw a Cuckoo leave the stones where my nest was, but there was no Cuckoo's egg. The Wagtails had three eggs on this day—9th June—and four eggs on the 10th, when I looked again. On the 11th I took up my observation post at noon. The female Cuckoo was in the quarry at the time with two males. The two males remained, and were continually being mobbed by several Wagtails. At 1.10 p.m. I saw the female Cuckoo dive into a patch of grass from a hurdle gate, and at 1.30 p.m. she rose and went straight to the hole where I had seen her enter on the 9th. Six times she entered and left. The other Cuckoos were still in the quarry, and at 1.40 p.m., that is 10 minutes later, a Cuckoo entered and left the hole again six or seven times. The other Cuckoos were still in the vicinity, and I was called away for business reasons. I returned to my post at 3 p.m., and to my delight found two Cuckoo's eggs and one of the Wagtail, the Cuckoos being the same as in the nest on 4th June—mother and daughter again.

I thoroughly searched the quarry again, but could not find another Wagtail's nest. I may mention that the nest just found, *i.e.*, 11th June, contained five Wagtail's eggs that morning, so it is safe to assume that each Cuckoo removed two Wagtail's eggs when depositing their own. Unfortunately there was a serious shortage of Wagtail's nests, due no doubt to the flooded pit, but on 18th June I saw a Cuckoo visit two places in the quarry, continually flying from spot to spot for the best part of an hour. I let her get away and went straight to each place, and found a nest readily

enough in both places. The two nests were practically built but contained no eggs. On the 19th June one nest was again empty, but the second nest contained one Wagtail's egg. At 9 a.m. on the 20th the first nest still had no egg and the second Wagtail's had two. I took up my post at noon, and at 12.55 the female Cuckoo came over and rested on the hurdle gate. I lost this Cuckoo at 1 o'clock, and can only assume that she was somewhere in the grass. At 1.20 p.m. I noticed her again in the quarry, and she came over to within 6 feet of me. I had taken up a position just above No. 1 nest. She flew straight to the nest, her gape was wide open, and I plainly saw an egg in her throat, in fact I was near enough to see the red lining in her mouth between the egg and the base of her beak. She was assaulting two Wagtails, which she continually butted with her wings. They were undoubtedly the owners of No. 1 nest. They would not leave her, and she turned and flew straight to the second spot I saw her at on the 18th. The other Cuckoos were still about, and it was a difficult matter to pick out the bird I was watching. I managed to see her four or five times enter the hole at the second spot. This was 1.45 p.m. In and out she went, finally flying off in company with the others. It was 3 p.m. before I left my seat to investigate. No. 1 nest was only 6 feet away from me, and this was in the same condition as it was earlier in the day, no doubt forsaken through the attention of the Cuckoos on the 18th, and no doubt accounting for the Cuckoo's assault on the Wagtail on the 20th. I went straight to spot No. 2, and here found my two Cuckoo's eggs again for the third time with one Wagtail's—20th June. The apparently forsaken nest (No. 1) proved so subsequently, as it never contained eggs.

The net result of my season's observations was three eggs from the mother, eight from the daughter, three of which latter came to grief, two by falls of chalk and one too hard set to blow. It can be readily understood that the actual depositing of the Cuckoo's egg was not seen, as the Cuckoo had to enter a hole each time, which rendered her immune from observation. One can also understand how easy a Wagtail's nest can be overlooked through their selection of such cunning nesting places. The nest containing the Cuckoo's egg on 16th May was built in a stack of chalk, and had three small entrances. The nest was at least a foot in the chalk, and how the Cuckoo managed to insert her egg I cannot understand. I had to remove pieces of chalk before I could remove the eggs, and

an examination of the nesting hole proved to me that the Cuckoo had been in difficulties also, for one of the Wagtail's eggs was lying in the hole on the side of the nest. What happened is clear. The Cuckoo apparently just had sufficient space to deposit her own egg, but in removing one of the Wagtail's eggs she found the exit too small. Her feathers ruffled in her endeavour to withdraw, and she was glad to drop the Wagtail's egg over the side of the nest in order to release herself more easily. The egg dropped upon chalk and was fractured, probably due to the difficulty she experienced in withdrawing her head from the hole. This is not the first time I have noticed this with Wagtails—in fact I always examine the interior of the Wagtail's nesting hole for a stray egg, especially where I consider the Cuckoo has had difficulty in entering a small hole.

The egg I saw in the Cuckoo's throat on 20th June has interested me. I do not claim it to be her own. It certainly could have been the egg of the Wagtail which she was removing, carrying it away in her throat to avoid detection by the Wagtails belonging to No. 2 nest, where she ultimately deposited her own. On the other hand, it might easily have been her own, which she had intended for No. 1 nest. It is also very interesting to note how these two female Cuckoos kept the company of their five male consorts. This is especially to be noticed in connection with the deposits by both female Cuckoos on the 11th and 20th June respectively. Once again it is proved that the female Cuckoo finds the nests of her dupes at least 48 hours before she uses them, and I hope next season, if they return, to have such arrangements made as will enable me to ascertain with certainty what actually happens when they enter the Wagtail's nesting hole.

9, HAY HILL,

BERKELEY SQUARE, W. 1.

August 10th, 1921.

DEAR SIR,

Mr. G. J. Scholey has most kindly afforded me an opportunity of inspecting the series of eight Cuckoos' eggs taken in five Pied Wagtails' nests, during the past season, and he has also personally shown me the nesting sites referred to.

The enquiry which Mr. Scholey is so enthusiastically pursuing is full of interest. Although it is of course impossible definitely to declare that the two Cuckoos which on three occasions this season laid in the same Wagtail's nest are mother and daughter, there is no doubt that the character of the eggs, as regards shape, size and markings, though differing in colour, lend support to that belief. Mr. Scholey declares emphatically that each of the three Wagtails' nests in which the two Cuckoos laid received both Cuckoos' eggs on the same days, viz., the 4th, 11th, and 20th June respectively.

It is to my mind an astounding coincidence that on each of the three occasions both Cuckoos should lay on the same day, and that too when the interval of time between the laying in each nest was not less than a week. One is almost forced to the conclusion that there was some collusion or co-operation between the two female Cuckoos.

As a result of my own intimate study of the Cuckoo's habits during the past four seasons, I have formed the conclusion that sooner or later one female Cuckoo will dominate a given territory. By this I mean that I should not expect to find in two consecutive seasons a run of several eggs in any given area from two different Cuckoos, laid in nests of the same species of fosterer. I feel sure that the tendency is for each individual female to more or less monopolise her natural fosterers in her territory, driving out any other females desirous of depositing their eggs in the same nests. This aspect of the fascinating Cuckoo question, let alone the whole field of research into the habits of *Cuculus canorus*, is too big a subject to go into more fully on this occasion.

I wish, however, to pay tribute to the painstaking study which Mr. G. J. Scholey is making, and I hope that he will make every endeavour to find every Wagtail's nest in his quarry next season.

In advance I will hazard the opinion that he will not find both these Cuckoos laying together on more than one occasion next year. One will dominate the other, and I shall be surprised if he finds more than one or two eggs, if any at all, of the second Cuckoo.

As is pretty generally known, I am hoping to publish, in due course, considerable data respecting the egg-laying habits of the Cuckoo, only basing my conclusions upon practical experience, and that of such competent and accurate observers as Mr. G. J. Scholey.

Yours faithfully,

EDGAR P. CHANCE, M.B.O.U.

The Editor,

"Oologists' Record."

THE HEN HARRIER IN FRANCE.

In his notes in the March issue, Mr. J. Bishop related the finding of a colony of the Hen Harrier in France. Some of the eggs secured were afterwards submitted to the Rev. F. C. R. Jourdain who has pronounced them to be those of Montagu's Harrier. Three of the eggs taken by Mr. Bishop from different nests average as large as 43 by 33.6, and are considerably larger, especially as to breadth, than the average of 100 eggs of Montagu's Harrier. In communicating these facts to us, Mr. Bishop adds that he had previously had little experience of Harriers and had no chance to note the essential points of difference in the birds themselves. The size of the eggs also misled him.

"THE BOOK OF BIRDS."

By Henry W. Henshaw, formerly Chief of the U.S. Biological Survey, illustrated in natural colours from 250 paintings by Louis Agassiz Fuertes and including chapters on "Encouraging Birds Around the Home," by F. H. Kennard; "World Record of Feathered Friends," by Gilbert Grosvenor; "The Mysteries of Bird Migration," by Wells W. Cooke; and "How Birds can take their own Portraits," by George Shiras 3rd, and 45 reproductions from photos and 13 charts.

Published by the National Geographic Society, Washington, D.C., U.S.A. Price \$3; postage outside the U.S., 36 cents.

Mr. Gilbert Grosvenor, President of the National Geographic Society, was good enough to send us for review a copy of the above work which, though published in 1918, is probably new to most of our readers. Seldom has a bird book of more absorbing interest come into our hands, dealing as it does with so many interesting features of bird study.

Dr. Henshaw, who is responsible for the major portion of the text, discourses on the life history of most of the better known species and deals particularly with the economic aspect of bird life in its relation to agriculture. The great work done by the U.S. Biological Survey in this field is well known to everyone, and the pity is that our own Board of Agriculture does so little in this connection.

The late Wells W. Cooke explains most comprehensively the migration routes of many of the North American migrants, and the 13 charts, with which his article is enriched, show at a glance the routes taken by many species. One of the most interesting of these gives the two routes taken by the two great groups of the Palm Warbler, *Dendroica palmarum palmarum*, one of which winters in Porto Rico and breeds in the Mackenzie basin, while the other winters on the northern shores of the Gulf of Texas and breeds in Labrador. There is a point on the Western boundary of Georgia where these two lines of migration cross, almost at right angles, both coming and going. Another chart shows the different routes taken by the Connecticut Warbler on the spring and autumn journeys and another the two different routes taken by the Golden Plover in spring and autumn. In the autumn its non-stop flight from Nova Scotia, where it leaves the mainland, to the mainland of South America, some 2,500 miles, is thought to be the longest regular bird journey made.

There are far more bird sanctuaries in America than in England and Mr. Kennard, in an article accompanied by numerous illustrations, shows what can be done to attract birds even in a small way. The account of what Mr. Grosvenor has achieved in this direction, and which he no doubt justly looks upon as a world's record, is truly remarkable. He acquired in Maryland a farm of about 100 acres, half woodland and with some rough pastures and, some time

after he had taken it over, had a census taken of the number of breeding birds. "The bird census, taken in the week of June 15th to 21st, showed that on the first acre, they had one pair of Flickers, one pair of Bluebirds, one of Yellow Warblers, two of Orchard Orioles, two of Catbirds, one of Song Sparrows, two of Chipping Sparrows, one of Phœbes, 14 of House Wrens, seven of Robins, one of Kingbirds and twenty-six of Purple Martins." There were other acres for which a census was taken but no other came up to this total of 59 pairs.

"I attribute our success primarily," writes Mr. Grosvenor, "to shooting the English Sparrows and driving cats away, to putting up many boxes, keeping fresh water handy at all times, etc. We do everything we can for the comfort of our birds. For instance, we put on twigs little pieces of the oiled paper that our butter was wrapped in, and we left mud in convenient places for the Martins. The Catbirds used the oiled paper for their nests; in fact, they used all kinds of scraps. Imagine the delight of the family, when, on examining one of the Catbirds' nests in the autumn, we found one of the children's hair ribbons and also a piece of an old dress of the baby." Mr. Grosvenor relates, how, on placing a stuffed owl in the garden, all the small birds came to inspect it, how a pair of Red-throated Hawks, which nested in the orchard, had to pay the penalty for their misdeeds, how a pair of Phœbes had a nest on the cornice of the piazza, up and down which children ran all day, and much besides.

A separate article by Dr. Henshaw on American Game Birds will be read with great interest by British sportsmen, as the conditions are so different from those that obtain in Great Britain. He relates at length the alarming shrinkage in their feathered game and the steps that are being taken to stem it. He does not say so, but we would suppose that the creation of large landed estates, a new and increasing feature in American rural life, will perhaps tend to help matters if preservation is systematically undertaken as it has been for centuries in England. Our large landowners, though blamed for so much, can never be blamed for not protecting our game birds. Even the cutting up of so many large properties that has followed the War will not alter things much, though one could wish that other species were protected as well as the game birds.

THE EDITOR.

THE OOLOGISTS' RECORD.

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[December 1, 1921.]

OOLOGICAL NOTES ON SOME OF THE BREEDING BIRDS OF PALESTINE.

BY CAPT. C. R. S. PITMAN, I.A., M.B.O.U.

(Continued from p. 38.)

Brown-necked Raven—Corvus corax umbrinus.

I did not actually take any eggs of this species, though I came across many old nests in cliffs in ravines a few miles north of Jerusalem, in the cliffs of the Jordan Valley between the Sea of Galilee and the Dead Sea, and in the high and inaccessible cliffs of the innumerable wadies and ravines which open out into the Jericho Plain from the eastern slopes of the Judean Hills. I have evidence of their breeding in suitable localities throughout the hills of Palestine.

The nest is of the usual type, though somewhat smaller than that of the British bird, and is generally quite accessible, and often placed in cliffs at no great height from the ground.

Similarly situated nests were found in Mesopotamia, in the hard sun-baked cliffs of the River Tigris, near Samarra and the River Adhaim.

The breeding season, I am told, commences in early March, but I did not have the good fortune to visit any nesting haunts at that time of the year.

This species is resident, though it moves down to the Coastal Plain during the winter.

Palestine Hooded Crow—Corvus cornix syriacus.

This species I have found breeding both in the Judean Hills and Coastal Plain, though their habits differ considerably in the two areas. In the hills they are equally fond of olive and other low trees as of tall evergreens; and they seem to prefer the more secluded valleys and ravines running up into the hills in the same way as *Garrulus glandarius atricapillus*, and avoid the hill-tops and broad valleys between the larger ranges. In the Coastal Plain they almost invariably build their nests in the tallest eucalyptus

trees, and often so high up and among such slender branches that they are quite inaccessible.

In such situations the abandoned nest is often used by the Hobby, *Falco subbuteo*, which does not lay its eggs until the month of June.

In common with other Crows, this "Hoodie" sticks to the same locality year after year, and even after being robbed of one set of eggs will only move to another site in the near vicinity and build a fresh nest, while instances have occurred of a second set being laid in the first nest. There is little of interest in the description of the nest, which is the usual large mass of sticks placed in a tree at any height from 10 feet to 70 feet above the ground, and which contains the soft receptacle for the eggs; made of dead grasses, wool, lumps of hair, rags, old paper, string, etc.; plastered mud is not included in the constituents of the nest. The nests are fairly conspicuous, and the sitting bird slips quietly off the nest on the approach of a suspicious character in the same manner as *Corvus corone*, and thus often reveals the presence of an otherwise unsuspected nest. If robbed of her first two sets of eggs, the same bird will nearly always produce a third set. The Great Spotted Cuckoo, *Clamator glandarius*, uses this species for foster-parent, but I never came across any eggs, though one of these Cuckoos was frequently about during April, May and June at the edge of the Wady Rubin marshes, where there were several Crows' nests in the tall eucalyptus trees.

As so few specimens have passed through my hands, and I have not examined many nests, I am hardly qualified to say very much regarding the size of clutch and coloration of eggs. My eggs are as follows:—

2.6.18	...	1	Fresh. Judean Hills, north of Jerusalem, 2,400 feet.*
11.4.20	...	6	Fresh. Wady Khanin, near Ludd.†
5.5.20	...	2	Fresh. Bir Salem, near Ludd.‡
10.5.20	...	5	Fresh. Wady Khanin, near Ludd.†

* Bird deserted after egg had been taken—which I had to do, as the previous nest had evidently been robbed, and I was afraid to leave this egg.

† The same bird.

‡ Nest in almost inaccessible tree; eggs taken, as boy said he would not go up again.

The normal breeding season commences between the end of March and the middle of April, and is prolonged as late as June by the loss of the first, and sometimes second, set of eggs. Normally, it appears that there is only one brood brought up in the season. I have noted in inches the measurements of the single egg taken in the Judean Hills, 1.64×1.16 , and its coloration as "bright greyish green, tinged bluish; shell spots and fine speckles of greyish, greyish brown, and greyish purple all over; surface spots and blotches, chiefly at the larger end, of sepia and brownish."

There is nothing remarkable in the colouring of the eggs taken in the Coastal Plain in 1920; they are much the same as the above, though the set of two is bluer, with fewer markings, which are principally confined to the top of the large end. This species is resident throughout its range, though it moves about a great deal during the winter, when it may often be found in fairly large flocks.

Syrian Jay—Garrulus glandarius atricapillus.

Unknown in the Coastal Plain, but breeds freely in the Judean Hills, where I found nests from 1,500 to 2,500 feet. I believe it also nests in the hills near Nazareth, as I saw some of these handsome birds in that neighbourhood in the middle of March. Nests were invariably placed in olive trees from 5 to 20 feet above the ground; there was no attempt at concealment, so they were not hard to find. It was unusual to find a nest on the hill-crests or slopes, or in the large valleys between hill ranges, as this species prefers the smaller well-wooded ravines and vales running up into the hills. In such localities there would nearly always be a pair of Jays, and no more, and then it was only a question of systematically searching that area to find their nest. The same pair evidently breed in their own special locality year after year, judging by the number of old nests which were found in all stages of decay.

The nests do not appear to differ in construction from those built by the British bird, consisting as they do of a scanty foundation of thin sticks and twigs into which is interwoven a fairly solid layer of rootlets, this being lined with finer rootlets. In one case the nest seemed far too small for the sitting bird, which could hardly get into it, and had her tail cocked up right over her back. Another nest was in a tiny stunted olive tree, not 7 feet above the ground, and quite conspicuous; incidentally, this was the only nest found on the slopes of a hill near the crest. I have not enough data to

go on to say much about the normal size of clutch, which is probably six or five eggs. My sets are as follows :—

26.5.18	2	Fresh	1,500'	} Judean Hills, north and north-west of Jerusalem.
30.5.18	6	Very advanced ...	2,500'	
4.6.18	5	Hatching out ...	2,300'	
13.6.18	4	Advanced and bad	2,000'	

Measurements in inches of 13 eggs :—

Average.		Maxima.		Minima.	
(L.)	1.26	(L.)	1.30 × .90	(L.)	1.21 × .90
(B.)	.916	(B.)	1.23 × .94	(B.)	1.21 × .90

The eggs do not differ in coloration from British specimens. The breeding season apparently starts early in May, and there is only one brood in the year. This bird is a resident.

Hagiopsar tristrami.

While Chukar-shooting in the Wady Kelt, near Jericho, during August, 1920, I came across what were undoubtedly the nests of this species on the ledges of the rocky and precipitous cliffs which flanked this cleft in the hills. The nests, as far as I could see, were large, untidy collections of sticks, and quite conspicuous—they were not more than 50 feet above the ground level of the ravine and by no means inaccessible. I have no information as to which months constitute their breeding season. I believe this species is a resident, and it is peculiar to a few ravines only in the vicinity of the Dead Sea.

Palestine Greenfinch—Chloris chloris chlorotica.

After the House Sparrow (*Passer domesticus biblicus*) this is probably the commonest breeding species in Palestine, at least in the Coastal Plain, besides which it is one of the earliest as well as the latest to nest.

It is essentially a bird of the orange groves, though it is not over-particular in its choice of breeding sites, provided that the cover is fairly thick and helps to concealment, while it is by no means uncommon in the Judean Hills. Dozens of nests may be found in quite small orange groves, while this bird is even more partial to the small patches of lemon trees which are scattered amongst the groves.

Eucalyptus, firs and casuarinas are also patronised, and in the hills the olive trees are usually selected, and preferably those which are short and bushy. I have found no nests in the almond groves.

In 1918 half a dozen nests found in the Judean Hills were all in olive trees, and those found in the Coastal Plain not far from Jaffa were in —

Orange trees	...	51	Brambles and cover	1
--------------	-----	----	--------------------	---

In 1920, out of over 200 nests found, I have the following records from the Coastal Plain near Ludd and Ramleh :—

Orange trees	...	88	Eucalyptus	...	8
Cypress firs	...	6	Lemon trees	...	13

No nests were found in mimosa, cactus or olive trees in this area, and many more found in lemon and fir trees of which I have kept no record.

Nests are found at varying heights above the ground, but are rarely lower than 3 feet, the favourite height being from 5 to 7 feet, while I have found nests as high as 15 feet.

They vary but little in construction, and out of several hundreds examined there is not much to note.

There are two types of nest—the one made chiefly of fine twigs and dead grasses, and the other principally built with the fine red surface-feeding rootlets of the orange and lemon trees, which give the nests a very rufous appearance, while they may be solid, neat and compact, as well as rather flat and untidy. The former type is found in the Judean Hills, and a good many in the groves by the River Auja near Jaffa, and in the eucalyptus and fir trees; while the latter is almost invariably confined to the orange and lemon groves. The egg-cup and nest lining do not differ in materials from those of English nests, and a medley of stuff can be found, such as soft pieces of string, plant-down, vegetable wool, sheep's wool, the hair and fur of animals, long horsehairs, pink medical cotton-wool, feathers, and such like; while I have sometimes seen foundations of dead leaves and dry skeleton leaves, and in others the nest decorated outside with lichens, aromatic plant stems and dry flowers. A few special notes are worth recording: (a) "Rather an unusual type of nest for this Finch, quite neat and compact, being constructed of very fine dead grass firmly and closely interwoven and lined with soft materials, more like the nest of some species of *Sylvia*." (b) "Remarkably neat little nest. The usual

foundation of dry stalks, stems, etc., but the upper part more like a Goldfinch's nest of greyish-green dry flower and plant stems—the usual soft lining.” (c) “Untidy, and chiefly composed of cotton-wool and plant-down, interwoven and strengthened with plant stems, fine dead grass and flower-heads. Usual lining.” (d) “Nest chiefly composed of, and entirely lined with, great lumps of hare's fluff—more like a nest of *Parus major*.” (e) This last I am about to describe was the most curious nest of all, and I find it hard to offer an explanation. It was typical Greenfinch in construction and placed barely 4 feet above the ground in a bushy orange tree near the edge of a grove. But from some distance off its large size and somewhat flatness of shape attracted my attention, and it appeared to be more suited to a Bulbul than a Greenfinch. Judge of my astonishment, then, to find two fresh Bulbul's eggs (*Pycnonotus capensis xanthopygus*) and one very hard-set Greenfinch's egg. All the eggs were warm, and the sitting bird, which must have quietly disappeared, was evidently a Bulbul, as I have never seen this species sitting in its nest; while the Greenfinch sits exceedingly tight, and will hardly fly away till one's outstretched hand has almost touched her, and even then she keeps up a mournful twitter from a tree or the ground only a few yards away. In this case I can only come to the conclusion that a Bulbul appropriated the nest of a Greenfinch and altered it to suit its own needs; but why did it contain the Greenfinch egg, which would have hatched out after a few days if I had left it? Nests, though placed in any part of a tree or bush, are generally fairly well concealed, and are just as commonly found in the centres as well as along the edges of groves, but never more than one nest will be found in the same tree or shrub.

The following are the internal measurements in inches of some nests examined in 1918:—

$2\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{4}$	$2\frac{1}{2} \times 2 \times 1$	$2\frac{1}{2} \times 2\frac{1}{4} \times \frac{3}{4}$
$2\frac{1}{2} \times 2 \times 1\frac{1}{2}$	$2\frac{1}{2} \times 2 \times 1\frac{1}{2}$	$2\frac{1}{2} \times 2\frac{1}{4} \times 1\frac{1}{2}$
$2\frac{1}{2} \times 2\frac{1}{4} \times 1$	$2 \times 2 \times 1$	$2\frac{1}{2} \times 2 \times 1\frac{1}{2}$
$2\frac{1}{2} \times 2\frac{1}{2} \times \frac{7}{8}$	$2\frac{1}{2} \times 2\frac{1}{4} \times \frac{3}{4}$	$2\frac{1}{2} \times 2\frac{1}{4} \times 1\frac{1}{4}$
$2\frac{1}{2} \times 2\frac{1}{4} \times 1$	$2\frac{1}{4} \times 2 \times 1$	$2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{4}$
$2 \times 1\frac{3}{4} \times \frac{3}{4}$	$2\frac{1}{2} \times 2\frac{1}{4} \times \frac{3}{4}$	$2\frac{1}{2} \times 2\frac{1}{2} \times 1$
$2\frac{1}{2} \times 2\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2 \times \frac{7}{8}$
$2\frac{1}{2} \times 2\frac{1}{4} \times 1\frac{1}{4}$	$2\frac{1}{2} \times 2 \times 1\frac{1}{4}$	$2\frac{1}{2} \times 2\frac{1}{2} \times 1$

In the hills I found nests at all heights up to 2,500 feet. The breeding season commences at the end of March and continues almost up to the end of August, though the principal nesting months are April, May, and the first half of June. After that, nests, though very common, are not abundant, and not many are likely to be found after the end of July.

The earliest nest I found was on the 2nd April, 1920, and contained five eggs which had been incubated over a week.

Nests found after the 10th July contained eggs as follows :—

1918.—Coastal Plain, near Jaffa.			1920.—Coastal Plain, near Ramleh and Ludd.		
11.7.18	4	Sitting.	17.7.20	4	Fresh.
11.7.18	2	Fresh.	21.7.20	4	Advanced.
11.7.18	1	Fresh.	22.7.20	4	Advanced.
12.7.18	4	Hatching out.	24.7.20	4	Several days.
14.7.18	4	Advanced.	27.7.20	4	Very advanced.
15.7.18	3	Fresh.	2.8.20	3	Very advanced.
15.7.18	4	Hatching out.	12.8.20	3	Stale.

These can only be taken as rough records, as in 1918 I did no more nesting after the 15th July; while in July, 1920, I was not on the look-out for nests of this species, and only took note of those that I chanced upon while in search of other kinds.

Two broods are brought up in the year and possibly a third. The normal clutch consists of five eggs, and out of at least 300 nests that I have examined I have only come across one in which there was more than this number, and that one contained a set of six fresh eggs which I took on the 1st June, 1920, in the Coastal Plain. In the same area that year, on the 12th June, I found a set of four fresh eggs, one of which was a pigmy egg and not as large as that of the Golden-crested Wren. Sets of five are very uncommon late in the season, and I only came across two after the end of June.

The eggs vary tremendously in size and shape, as well as a good deal in their coloration, and I find that several of my sets of small *Chloris c. chlorotica* overlap the sets of my largest eggs of *Carduelis c. niedeckii*, as follows :—

Chloris chloris chlorotica.

Measurements in Inches.

6.7.18	3	Fresh	...	.69 × .55	} av. = .70 × .56
				.70 × .57	
				.71 × .56	
9.7.18	3	A few days	...	.66 × .55	} av. = .683 × .547
				.72 × .56	
				.67 × .53	
9.7.18	4	Fresh	...	.70 × .53	} av. = .71 × .5325
				.71 × .53	
				.72 × .54	
				.71 × .53	
11.7.18	2	Fresh	...	.68 × .54	} av. = .69 × .54
				.70 × .54	

Carduelis carduelis niedeckii.

Measurements in Inches.

2.7.18	1	Fresh	...		.69 × .49
6.7.18	4	Advanced	...	.69 × .51	} av. = .7125 × .5175
				.72 × .53	
				.70 × .51	
				.74 × .52	
14.7.18	4	Very advanced		.71 × .52	} av. = .6975 × .52
				.71 × .52	
				.68 × .52	
				.69 × .52	
9-19.6.18	5*			.70 × .52	} .71 × .52 } av. = .715 × .515
				.71 × .52	
				.72 × .52	
				.73 × .51	
				.71 × .51	
28.6.18	2	Bad, and one	fledged young	.72 × .53	} av. = .71 × .52
				.70 × .51	
12.6.18	2	Fresh	...	.70 × .52	} av. = .695 × .53
				.69 × .54	

* Five eggs of one set taken from the same nest, as follows:—

2 eggs	..	Fresh	..	9.6.18
1 egg	..	Fresh	..	10.6.18
2 eggs	..	Advanced	..	19.6.18

From these measurements it will be seen that whereas the two species of eggs overlap in length, they do not do so in breadth, the eggs of *Carduelis c. niedecki* being considerably smaller. Nevertheless, when these sets are laid out together I find them so similar that it is almost impossible to distinguish their species without looking at the distinctive marks. In comparison with these small eggs, the measurements of the largest sets should prove interesting:—

				In Inches.
26.6.18	4	Hatching out	$\cdot 85 \times \cdot 56$ $\cdot 88 \times \cdot 57$ $\cdot 87 \times \cdot 57$	} <i>av.</i> = $\cdot 867 \times \cdot 567$
28.6.18	4	Very advanced	$\cdot 83 \times \cdot 56$ $\cdot 83 \times \cdot 56$ $\cdot 82 \times \cdot 56$	
8.7.18	4	Advanced	$\cdot 82 \times \cdot 59$ $\cdot 80 \times \cdot 58$ $\cdot 80 \times \cdot 57$ $\cdot 81 \times \cdot 57$	

Of 93 eggs measured in 1918 (in inches) the average is $\cdot 7626 \times \cdot 564$. The

	<i>Maxima.</i>	<i>Minima.</i>
(L.)	$\cdot 88 \times \cdot 57$	(L.) $\cdot 66 \times \cdot 55$
(B.)	$\cdot 75 \times \cdot 61$	(B.) $\cdot 67 \times \cdot 53$

Of 18 eggs taken by me in 1920, the Rev. F. C. R. Jourdain, M.B.O.U., sends me the following measurements (in millimetres), *av.* = $19\cdot 1 \times 13\cdot 97$:—

	<i>Maxima.</i>	<i>Minima.</i>
(L.)	$19\cdot 9 \times 13\cdot 1$	(L.) $18\cdot 1 \times 14\cdot 2$
(B.)	$19\cdot 5 \times 14\cdot 5$	(B.) $19\cdot 9 \times 13\cdot 1$

N.B.—In this latter series the longest egg is also the narrowest.

There is little to be said about the colouring and marking of the eggs, as they approximate to British specimens; and markings are principally at the larger end, and though rarely in the form of a ring are sometimes confined to a cap. There is also a somewhat erythristic type of egg of which I have taken a few sets, and they are invariably large and curiously shaped eggs, which I describe as oblate ovals. Their ground colour is a pale pinkish-brown with

no trace of green ; surface markings are large and pale rufous and chestnut, the shell spots being a very pale maroon and reddish-purple.

One frequently comes across eggs with green rings near the smaller end, due to some abnormality in the pigmentation, and if one egg in a set is so marked one usually finds that two or three eggs in that set are all similarly affected. To conclude a very lengthy article, this bird is one of the commonest residents in the Coastal Plain, besides which it is strongly reinforced in winter by large migratory flocks. In the summer I have noted them feeding freely on the seeds of borage, thistles, hawkweeds, dandelions and various kinds of large daisies.

Palestine Goldfinch—Carduelis carduelis niedecki.

This exceedingly handsome little bird and rich songster breeds freely throughout Palestine, though it is far more common in the Coastal Plain than in the Judean and other hills. It is a resident, but large migratory flocks also winter in the country. In the hills I have found nests up to 2,500 feet, and the trees selected have been fig, olive and pomegranate ; whereas in the plains, the almond groves are the chief favourites, while nests are not uncommon in the smaller eucalyptus and in the lemon trees and are found more rarely in the bushy orange trees. The following table of a few recorded breeding sites is interesting :—

Coastal Plain.

				1918.		1920.
Almond	...	...	...	12	...	24
Leafy bush	...	...	...	1	...	—
Bramble cover	...	...	...	1	...	—
Orange tree	...	...	...	1	...	8
Eucalyptus	...	...	...	—	...	8
Lemon	...	...	...	—	...	5

The usual height for nests is from 8 to 12 feet above the ground, though some in almond, olive and lemon trees have been higher, and one in an olive tree in the foothills was at least 20 feet. A few nests also have been found very low, and one placed in the foliage of the stump of an orange tree was barely a foot above the ground.

Many nests may be found in a single almond grove, and the birds seem to have no preference as to whether they build at the

edges or centre of a grove, or amongst the top or lower branches of the trees. In orange trees the nests are well hidden, and in the other sites are by no means conspicuous, on account of their small size, and owing to the fact that the outside of the nests always have a greenish appearance, due to the dried plant and flower stems used as building materials, and which assimilate to a certain extent with the foliage of the trees. The nests retain this greenish or greyish-green appearance for many weeks, until some time after the young have flown; they then have a brown, withered look, and may almost be mistaken for a very compact and solid type of nest of *Hippolais pallida elatica*. Nests are usually small, very neat, compact and solid, almost invariably decorated outside with dry flower and aromatic plant stems, while the egg-cup is a thick mass of soft plant wool and vegetable down beautifully interwoven; and there are frequently fine grasses, fine rootlets, or a few horse hairs mixed up with the lining just inside the lip of the cup. Of course there are exceptions, and a certain number of nests are flimsy, untidy, and rather flat. One curious fact I have noticed about this bird on several occasions is, that the eggs are sometimes concealed at the bottom of the nest beneath a thick layer of the soft lining, and, unless one knew this trick or had actually put a sitting bird off the nest, one would be liable to miss the eggs altogether. These birds when on their nests sit very tight, and do not fly off until the intruder is right up to the nest. They are then nearly always at once joined by their mates, and remain very close at hand, keeping up a tremulous twittering until the intruder has left.

The internal measurements of a few nests, in inches, are noted :—

2	×	2	×	1	2	×	2	×	1	2	×	2	×	1
2 $\frac{1}{4}$	×	2	×	1	2	×	2	×	1	2	×	1 $\frac{1}{2}$	×	1
2 $\frac{1}{4}$	×	2	×	$\frac{1}{2}$	2 $\frac{1}{4}$	×	2	×	1 $\frac{1}{4}$	2	×	2	×	1
2 $\frac{1}{8}$	×	2 $\frac{1}{8}$	×	1 $\frac{1}{3}$	2	×	2	×	1	2 $\frac{1}{2}$	×	2	×	1
2	×	2	×	$\frac{3}{4}$	2	×	2	×	$\frac{3}{4}$	2	×	2	×	$\frac{1}{2}$

Eggs may be found from the end of March until about the end of July, and possibly even in August; but I think the latter half of April and the month of May constitute their real breeding season, though nests with eggs are quite common in June as well as in the early half of July. In 1920 the first nest I found was on the 13th April, and it contained two bad eggs and two young birds which had been hatched out three or four days.

In 1918, after the 5th July, the following nests were found in the Coastal Plain not many miles east of Jaffa :—

6.7.18	4	Advanced.	9.7.18	2	<i>Fresh.</i>
8.7.18	3	<i>Several days.</i>	12.7.18	3	<i>Fresh.</i>
8.7.18	2	<i>Fresh.</i>	14.7.18	4	<i>Very advanced.</i>
9.7.18	4	<i>Several days.</i>	15.7.18	4	<i>Several days.</i>

In comparison with the above list, the following sets were examined in the Coastal Plain near Ludd from mid-April to end of May, 1920 :—

16.4.20	4	Sitting.	22.5.20	5	Sitting.
22.4.20	5	<i>Several days.</i>	22.5.20	4	<i>Advanced.</i>
25.4.20	4	<i>Fresh.</i>	22.5.20	3	<i>Fresh.</i>
2.5.20	4	<i>Several days.</i>	22.5.20	5	<i>Sitting.</i>
5.5.20	5	<i>Full-fledged young.</i>	25.5.20	5	<i>Hard set.</i>
5.5.20	5	<i>Hard set.</i>	25.5.20	5	<i>Hard set.</i>
8.5.20	5	<i>Hard set.</i>	25.5.20	4	<i>Fresh.</i>
13.5.20	4	<i>Few days.</i>	28.5.20	5	<i>Fresh.</i>
17.5.20	5	<i>Few days.</i>	28.5.20	3	<i>Several days.</i>
17.5.20	5	<i>Sitting.</i>	29.5.20	5	<i>Hard set.</i>
17.5.20	5	<i>Sitting.</i>	31.5.20	5	<i>Very hard set.</i>
18.5.20	4	<i>Fresh.</i>			

What I chiefly wish to bring to notice is the fact that more than 50 per cent. of the nests in this latter list contained sets of five eggs, whereas in the former, of those found late in the season there is not a single clutch of as many as five eggs. From this I conclude that the normal clutch is five eggs; but after the middle of June it is quite unusual to find any sets of more than four eggs, while sets of three are then not uncommon. Two broods are probably brought up in the season.

In the hills in 1918 both fresh eggs and full-fledged young were found in the middle of June. In 1920 few records were made after the middle of June, as I confined my attention to other species whose habitat was the marshes.

The eggs vary a good deal in shape, size, and in the markings, though they do not differ in their various characteristics from British specimens.

The largest eggs easily overlap the smallest eggs of *Chloris c. chlorotica* (*vide* comparative table in note on *Chloris c. chlorotica*) in length, though they keep smaller in breadth.

The following measurements are interesting.

Measurements in millimetres sent me by the Rev. F. C. R. Jourdain of some eggs I gave him, which were taken in 1918 and 1920 :—

Average of 13 eggs measured 16.9 × 12.8

Maxima.

Minima.

(L.) 19 × 13.2

(L.) 15.7 × 12.5

(B.) 17 × 13.5

(B.) 17.5 × 12.3

Average in inches of 48 eggs measured in 1918 675 × .51.

Maxima.

Minima.

(L.) .74 × .52

(L.) .62 × .49

(B.) .69 × .54

(B.) .63 × .47

In comparison to these latter figures, the minimum measurements of *Chloris c. chlorotica* are :—

(L.) .66 × .55

(B.) .67 × .53

which are very decidedly shorter than the longest eggs of *Chloris c. niedecki*.

Palestine Linnet—Acanthis cannabina fringillirostris.

A resident in the Judean Hills—which is very common in the spring and summer, though I found nests by no means easy to find. I never saw any specimens in the Coastal Plain either in winter or summer, though I came across this bird on the hills round Nazareth and in Carmel during March, 1920.

As I only found a couple of nests containing eggs, I cannot say much about their breeding habits. Nests were in thick, solitary, thorny bushes 3 or 4 feet above the ground, on the open slopes of the limestone hills 12 miles north-west of Jerusalem, and at a height of about 2,300 feet above sea-level.

A set of five eggs found on the 2nd June, 1918, was on the point of hatching out, while another found on the 8th June contained but a single new-laid egg. The nests were well concealed, and in the case of the larger set (five eggs, I believe, being the normal clutch) the bird sat tight and only left when the shrubby cover had been well shaken. The nests were large and chiefly composed of dead grasses and bents, thickly lined with hair, sheep's wool and feathers. The eggs do not differ from British specimens. Measurements in inches are as follows :—

c/5

$$\left. \begin{array}{l} .71 \times .57 \\ .72 \times .54 \\ .68 \times .56 \\ .69 \times .55 \\ \text{1 smashed} \end{array} \right\} \text{av.} = .70 \times .555$$

Maxima.

$$(L.) \cdot 75 \times .53$$

$$(B.) \cdot 71 \times .57$$

Minima.

$$(L.) \cdot 68 \times .56$$

c/1

$$\cdot 75 \times .53$$

$$(B.) \cdot 75 \times .53$$

A certain number of old and empty nests were also found, and all were situated on the hill-sides, either about half-way up or nearer to the crest. I imagine the first eggs are laid about the end of April or in early May, and that probably two broods are brought up in a season.

Persian Desert Bullfinch—Rhodospiza obsoleta.

On the 14th June, 1918, a small nest was brought in to me which contained three fresh eggs, but all so damaged as to be impossible to save. One I measured was $.79 \times .53$ (inches). This nest, taken in the Judean Hills (2,300 feet) a few miles north-west of Jerusalem, was made of fine twigs and rootlets, thickly lined with wool, some horsehair and feathers, and not unlike a Greenfinch's nest. The nest was placed in an evergreen bush on a hill-side, quite well concealed and about 4 feet above the ground. The eggs were whitish, elongated and oblate, and marked at the top of the larger end with surface specks and spots of deep maroon and purplish-brown, and fine shell markings of pale mauve. I showed the remains of these eggs to E. C. Stuart-Baker, M.B.O.U., and he was inclined to think that they were the eggs of *R. obsoleta*. I must confess that I did not come across any of these birds in the Judean Hills during the summer, but in 1920 I had reason to believe that a few pairs remained to breed in Palestine. My experience of these birds is that they are winter visitors to the Coastal Plain, and they put in an appearance after the first heavy rain of the year. In 1918 they were first noted at the very end of December, while in 1919 the 17th December was the earliest date. They are very local, and roost in the eucalyptus groves, while their pretty little purring note of "Prrut-prrut" is quite unmistakable. ♀ birds are a good deal commoner than ♂'s in these flocks, which are present throughout the winter and which are evidently joined in March and April by large flocks on passage. It was very curious

the way in which huge, noisy flocks of these birds would congregate in ber trees (*Zizyphus jujuba*), mimosas, and other thorny shrubs near the eucalyptus groves before retiring to the groves to roost for the night, which they would not do without much preliminary fuss and circling round and round the grove, and they always settled in and then left again at least half a dozen localities in the grove before finally settling down for the night. At the end of April they were still very plentiful in certain eucalyptus groves near Ludd, had all paired off, and were very noisy; a good many pairs were noted right up to the middle of May, after which all had apparently gone. Several times I thought I heard these birds in an eucalyptus grove during the latter half of May and in early June, and then I saw a pair in our camp, which was not a quarter of a mile away from the particular grove, on the 14th June, and saw them frequently up to the end of the month, and on one occasion there were two ♀ and one ♂, all adult birds. They used to come and catch grasshoppers round our tents at Birsalem, near Ludd. Then on the 6th July I saw a pair near Ramleh town, and this made me almost convinced that a few pairs did remain to breed in the Coastal Plain.

Palestine House Sparrow—Passer domesticus biblicus.

Ubiquitous and resident throughout the hills and Coastal Plain. I don't think there is much to be said about this species which one does not know already. It is quite impartial as to the situation of its nest—holes in rocks, cliffs, trees, wells and houses, thick hedges bushes, trees, cactus, etc., all come alike to it—and the nests are the same untidy structures which are found elsewhere. The breeding season starts about the middle of April and continues right on into August. Two broods are brought up in the season, and these birds will go on laying up to three or even more sets when persistently robbed of their eggs. Sets of seven, six and five eggs were all quite common, and it is hard to say which of these numbers constitutes the normal clutch. In cliffs, pits, wells, trees, etc., they are gregarious. The eggs vary as much as those found in the British Isles, both in size, shape and the colour of the markings.

Small Palestine Sparrow—Passer moabiticus moabiticus.

I really have no business to include this species in my list, as I neither came across the nests nor the birds, though they breed

commonly in the late spring and early summer in the cover at the northern and southern extremities of the Dead Sea, which localities I was unable to visit during their breeding season.

[We have a set of five eggs taken in the Jordan Valley on the 23rd April.—EDITOR.]

Spanish Sparrow—Passer hispaniolensis transcaspicus.

Common locally in the Coastal Plain, where it breeds in large colonies in tall eucalyptus trees and fir trees. It is also found in the Jordan Valley, and I noted a flock in the gardens of Jericho on the 15th August, 1920. I believe it is a resident, but although I was always out looking for birds, I saw none of this species near Ludd from the beginning of November, 1919, until after the middle of February, 1920. There was evidently then a migratory movement of sorts, for these birds appeared in large numbers on the 20th February and went on increasing until the end of the month. They then began to decrease, and by the 6th March the majority seemed to have passed on, although I noted a few about in the middle of that month. However, as they are so local and their breeding sites are the tops of lofty eucalyptus trees, unless one happens to live near a colony it is quite possible to overlook these birds, as one requires the aid of a pair of glasses to distinguish the adult birds when at no great distance. In one large eucalyptus tree I have counted over 60 nests, not one of which was within 30 feet of the ground. The nests are in no way different to those of *P. domesticus*, and two broods are apparently brought up in the season, for I saw broods strong on the wing at the end of May and in early June, 1920, while I took many sets of fresh eggs from a colony near Jaffa at the beginning of July, 1918.

Five eggs seems to be a normal set, though sixes are not uncommon, and one rarely finds a Sparrow, however late in the season, incubating less than five eggs. Actual sets do not vary as much as those of *P. domesticus*, but the eggs of different sets vary a great deal in size, shape, colouring and markings. The average of 40 eggs measured in inches is $\cdot 844 \times \cdot 618$, while other measurements are :—

<i>Maxima.</i>	<i>Minima.</i>
(L.) $\cdot 93 \times \cdot 61$	(L.) $\cdot 79 \times \cdot 60$
(B.) $\cdot 90 \times \cdot 66$	(B.) $\cdot 83 \times \cdot 58$

I have a record of a ♂ which was breeding in company with a few dozen pairs of *P. domesticus* who had nests in the roofs of our office huts at Divisional Headquarters. I often used to watch him at his nest in my office, but don't know whether his mate was of his own species or *P. domesticus*. At any rate, his presence seemed to be tolerated by the majority.

Rock Sparrow—Petronia petronia puteicolor.

This species I found common in the Judean Hills at elevations of nearly 3,000 feet in the vicinity of Ramallah (12 miles north of Jerusalem). I cannot say whether they are resident or migratory, as my acquaintance with them was only during the month of June, 1918. They breed either in single pairs or colonies, in the sides of wells, in holes in the walls of rock cisterns, in old walls, and in the clefts and crannies in rocky cliffs. These birds are unmistakable on account of their plaintive twittering call, which becomes rather monotonous, and by the white terminal spots to the tail which are very conspicuous when in flight. The nests are often hard to get at on account of their position, and when one has reached the entrance-hole it is often too small to admit the passage of a hand, or the nest may be placed too far inside.

They are very like *P. domesticus* in their breeding habits, and if a set of eggs is taken they are accommodating enough to lay a second and even a third set in the same nest. Nests are very similar in construction to those of the above-named species, but consist chiefly of softer materials and more feathers, hair and wool, but in some cases I only found a tiny pad of wool and feathers with a very scanty foundation of dry grass and beuts. One nest was a large mass of cow's and goat's hair and sheep's wool, with a few feathers mixed up in it, and simply swarmed with fleas of three different kinds. The young birds make the nest and nesting hole in a filthy mess, so much so that it absolutely stinks. There are probably two broods in the season, and I found young ones able to fly on the 31st May, 1918. A further description of this nest is as follows:—

“The actual nesting site was in the walls of an old rock cistern cut into a hill about 2,500 feet up. The diameter of the cistern entrance was not more than 4 feet, the depth 6 feet, and the inside diameter 15 to 20 feet. The nesting hole was fairly large and about 4 feet from the bottom of the cistern; the hole led into

three chambers, one each on the right and left and one in the centre, and all about a foot in. The nest was constructed with a little dead grass lined with feathers, and when new must have been a pad of material with a shallow cup in the centre, but was now in a filthy state on account of two or three weeks' droppings from the young birds. There were three fully fledged young, and two bad eggs which were clotted with congealed filth. The ♀ parent bird came out of the mouth of the cistern on our arrival and flew away. The cry of the ♀ was a prolonged twittering, if anything rather harsh ; it reminded me on occasions of the alarm note of the Peewit, though, of course, not so voluminous. She also uttered a very Finch-like chirrup. The eggs differed very considerably in size, colour, shape and degree of badness. One was hard set, stinking and quite impossible to clean, of the usual shape, but reminded me more of a Tree Pipit's egg ; the ground colour was a pinkish-purple, very thickly speckled, and marked all over with purple and purplish-brown, shell spots of a greyer hue ; measured $\cdot 86 \times \cdot 66$ (inches). The other was unfertile and easily cleaned, small and round, measuring $\cdot 77 \times \cdot 62$; whitish ground colour, speckled all over with grey-brown shell spots, the larger end being stained and heavily blotched with brown and sepia surface markings. Out of the same nest two fresh eggs were taken on the 7th June, 1918, and another couple on the 8th June. Not much attempt had been made to clean up or rebuild the nest, though a little fresh dry grass, some bents and feathers had been added, but the nesting hole was still in a filthy state. The ♀ bird was always very careful to leave the cistern before anyone could get down to the nest, and while one was yet several yards away she would come out and perch on a rock near by. Then she would go through a regular display to try and draw one away from the nest, and was an adept at playing the wounded bird and going through various noisy antics in order to attract attention to herself and draw the intruder away from the nest. This nest was again visited on the 19th June, when six fresh eggs were taken, all of a beautiful reddish-purple colour, finely speckled, streaked and spotted all over with reddish-purple on the surface and with finer purplish shell markings. This nest of hair, etc., and full of fleas, has been previously described."

The measurements of 14 eggs are as follows :—

$\cdot 86 \times \cdot 66$	} { 2, and 3 fully fledged young. }	Stale and bad...	31.5.18	2,500
$\cdot 77 \times \cdot 62$				

·885 × ·6625	4	Fresh	... 7-9.6.18	2,500'
·86 × ·66	6	Fresh	... 19.6.18	2,500'
·845 × ·65	2	Stale and bad.	5.6.18	2,300'

$$Av. = \cdot 844 \times \cdot 65.$$

Maxima.

(L.) ·91 × ·66

(B.) ·86 × ·67

Minima.

(L.) ·77 × ·62

(B.) ·77 × ·62

Several colonies were found in the middle of June, but all the nests contained young birds. It is quite impossible for me to say what is the size of a normal clutch, probably five or six eggs.

NOTES FROM NYASALAND.

I propose to confine this article to certain general considerations, and shall hope to follow it with others giving a more detailed account of the nests and eggs which have come under my notice.

By the end of this year (1921) Blantyre will be connected by rail with the Cape, but till now Nyasaland (formerly British Central Africa) has been the most difficult of access of all the British possessions in Africa. Transshipping at Beira into a coasting steamer, you reach, after twenty-four hours of a very troubled sea, the Portuguese port of Chinde, where there is a British concession. Then follows a journey, which may take the shallow-draught river steamer anything from three days to a week, according to the state of the river, up the Zambesi to Chindio, also Portuguese. Here one boards a train which, after traversing Portuguese territory for a short distance, enters the British Protectorate and arrives the same evening at Blantyre.

That a trip up the Zambesi is packed with ornithological interest may well be imagined. There are many stoppages, accidental and other, so that I was able on my way up (September, 1920) to do a little nesting. Eggs found were those of the Red-chested Sunbird, *Chalcomitra gutturalis*, Mozambique Shrike, *Laniarius major mossambicus*, Spur-winged Plover, *Lobivanellus lateralis*, and Kittlitz' Sand Plover, *Charadrius varius*. The last two were at Chindio, on a large sandy island in the river. Watching shore birds to their nests at midday, under the white glare of a scorching African sun, is a good test of interest in the hobby, I thought.

I arrived at the end of September at Zomba, and spent there the ensuing five months. Early in March this year I moved to Blantyre, where I still am stationed.

British Nyasaland has an area of rather under 40,000 square miles, and consists of a northern part, which is a long narrow strip lying between Northern Rhodesia and Lake Nyasa, and a broader southern part, which may be described as a rough oblong of country south of the Lake. This southern area is bounded on its remaining three sides by Portuguese territory. European settlement centres in the southern portion, where are situated the townships of Blantyre and Zomba.

I find it by no means easy to describe in a few words the general configuration of the country, on which so much that concerns birds must depend. Lake Nyasa is at 1,600 feet, and the northern part of the Protectorate consists of a high watershed (up to 8,000 feet), which slopes more or less gradually to the Lake. These hills in their southern continuation form, as the Kirk Range, the international boundary. A reference to the map will show that the Shiré River flows out of the southern end of Lake Nyasa southwards into the Zambesi, dividing in its course the southern portion of Nyasaland into two unequal parts. Here it may be remarked that the Shiré is rapidly diminishing in volume from year to year; whether or not this bears any relation to the assumed general desiccation of Africa is uncertain. In the southern district, then, we have, going from west to east, first the high Kirk range, gradually sloping east to the valley of the Shiré, which itself falls rapidly to the south after going half its distance. Port Herald, towards its southern end, is only about 300 feet above sea-level. Crossing the Shiré and going east, the land rises rapidly to the uneven plateau known as the Shiré Highlands, with its centre somewhere about Blantyre. Further east still there is another considerable drop to Lake Chilwa and the Ruo River, which form the Portuguese border on that side of the Protectorate. There are therefore in Southern Nyasaland, with which I shall perforce have chiefly to concern myself, two belts of high country alternating with two of low. The Shiré Highlands, the interior high belt to which most of my notes will relate, has this further peculiarity that out of it there rise a number of isolated hills and mountains which, in the case of Mlanje—the largest, and about 70 miles round—reach a height of 10,000 feet above sea-level, or say, 7,000 feet above the average level of the Highlands. Exactly

where the Shiré Highlands begin and end nobody seems to know, but all are agreed that the district immediately about Limbe (4 miles from Blantyre) forms their highest point, actual mountains apart. From Limbe the land falls more or less rapidly in all directions, north to the Lake, east to Lake Chilwa, and west and south to the Shiré. I may here name the principal mountains of the Highlands, as I shall have to refer to them later. They are Mlanje, Chiradzulu, Zomba, Cholo, Mikalongwe, Soche, Mpungwe, Mchiru, and Ndirande.

Seasons and rainfall are next to be considered. Lying between 10° and 17° south, and at no great distance from the Indian Ocean, Nyasaland differs little in its seasons from the north-eastern parts of the Union. Bearing in mind that the actual amount of rainfall may vary from 100 inches at Mlanje to 20 inches in the Shiré Valley, one may say that there is a rainy season of six months from November to April, and a dry season of which the months from May to August are cool, and September and October hot. The Shiré Valley has very high summer temperatures, up to 120° in the shade, and even in winter it is never really cold there, while at Blantyre a summer heat of 90 is unusual, and fires are very welcome in June and July, when the glass often goes down to 40° .

Most birds breed during the rains, November to March being the best months; but many species begin to build long before any rain falls, and others lay only in the dry season. There is observable in August and September a distinct reflex of the southern spring which manifests itself in the nesting of hawks and crows as well as in the bursting into leaf of the deciduous native trees. But the grass fires which annually sweep the country from August onwards effectually prevent any general nesting until the first rains extinguish them.

Allowing for overlapping, one may say that there are three distinct types of bird fauna in the Protectorate, corresponding to three different kinds of country. First there is the abundant life of the Shiré Valley, reminding one in its richness in species and individuals of the splendid avifauna of Uganda, and in its essence tropical. Next we have the sparser bird-life of the Highlands, more suggestive of South Africa, and distinctly disappointing on first acquaintance to one whom other parts of Africa have led to expect much from a new domain. Finally there are the very interesting birds confined to the patches of primeval forest which crown the summits and fill

the lateral kloofs of Mlanje, Zomba, Chiradzulu, and many of the lesser hills.

Practically all our knowledge of Nyasaland birds was gained in the ten years before the present century began. In that decade twenty-eight new species were found ; all of them (except a parrot from Liwonde) in the Highlands, and most of them being forest species. Eleven of them are, so far as I can learn, peculiar to the Protectorate. These are :—

Crawshay's Francolin, *Francolinus crawshayi*.

Bertrand's Bush Shrike, *Chlorophoneus bertrandi*.

Mlanje Bulbul, *Phyllastrephus mlanjensis*.

Mlanje Thrush, *Turdus mlanjensis*.

Alethe, *Alethe anomala*.

Yellow-throated Bush Warbler, *Apalis flavigularis*.

Nyasa Reed-Warbler, *Bradypterus nyasæ*.

Whyte's Crombec, *Sylvietta whytei*.

Lesser Thick-billed Weaver-finch, *Pyrenestes minor*.

Green-headed Oriole, *Oriolus chlorocephalus*.

Sharpe's Weaver, *Othyphantes sharpii*.

One or two of these may have to be relegated to the rank of sub-species. The Oriole is probably the most distinct of the peculiar species.

A list compiled from all available sources gives some 450 species for the Protectorate. Probably there will be many additions in the future, for in the past twelve months I have noted several not previously recorded, for example *Riparia rufigula*, *Hirundo griseopyga*, *Heliolais kirbyi*, *Cisticola erythrops*, *C. brachyptera* (= *C. rufa*), another *Cisticola* not yet identified, and *Cinnyris afer*. Nyasaland lies at the point where the East African and South African sub-regions meet ; its affinities are with South Africa except in the case of birds inhabiting the forest-patches, which exhibit rather East African relationships.

The Shiré Valley, which as yet I have not had opportunity to explore, promises better, but I never knew a belt of country where nests were either so few or so hard to find as is the case in the Shiré Highlands. Many causes contribute to the comparative scarcity of birds, most whereof may be traced to their ultimate source in the settlement of the country by Europeans. Thirty years ago, when it began, the native population was very small in these cold uplands,

always liable to Angoni raids just as the grain ripened. But years of peace have trebled the native population, naturally prolific ; more firewood is wanted every year both for native and European domestic use, and also for the railway engines and the settlers' tobacco barns. The countryside is burnt afresh every dry season, so that quite apart from the direct destruction of bird-life, the undergrowth gets no chance to grow and provide nesting places. More and more land is cleared for tobacco, cotton and native crops. The swarms of waterfowl which bred in the swamps of Chilwa and Pamalombe are rapidly disappearing before the sportsman and pot-hunter. Last, but not least, must be mentioned the proclivity of the small native boy to turn every living thing into "chakudya" (food). Nothing comes amiss to him, from an addled bustard's egg to a nestfull of fledgling finches with the mother snared on the nest. There is something to be set on the other side of the account. Natives have been removed from some of the hills, where a new growth of indigenous trees is springing up fast, and there are large plantations of eucalyptus about the townships and most European homesteads. But this only seems to advantage the crows, and in general the Shiré Highlands and contiguous areas are witnessing a grievous diminution of their bird-life.

C. F. B.

NOTES ON SOME OF THE RARER BRITISH BIRDS WHICH BREED IN DENMARK.

By C. F. A. RITSON.

In 1912, in company with a friend, I had a couple of weeks nesting in West Jutland—that part of Denmark lying to the west, which is washed by the North Sea. The country there is extremely flat, and consists of ling, delta and damp meadowland, intersected by water channels and swamps ; whilst in the neighbourhood of the Ringkjøbing Fjord and the mouth of the sluggish Skjernaa, there are numerous small islands and immense tracts of reeds, the whole forming a perfect retreat for ground-building species. Most of the bird colonies are on government ground and strictly preserved, and it is necessary to obtain a permit from the Danish Ministry of Agriculture in order to visit them. Without a permit one can do

nothing ; there are numerous wardens, and permission is not easily obtained.

Of all the birds we saw, perhaps the waders were the most abundant, both in numbers and species. The country appears to be one of the great breeding-grounds of the Dunlin, *Pelidna alpina* (L.) ; these birds literally swarm on the deltas, and were " trilling " everywhere. The Ruff, *Pavoncella pugnax* (L.), Black-tailed Godwit, *Limosa aegocephala*, Bechst., Redshank, *Totanus calidris* (L.) and Lapwing, *Vanellus cristatus*, W. and M., were also breeding in large numbers.

The habits of the Dunlin were quite as exasperating as at home. Whilst tramping along the delta a small snipelike bird would be seen standing a few yards away, alert and motionless ; you walk towards it—it runs a few yards, then turns round and again surveys you. You may repeat the manœuvre as often as you wish ; the exasperating bird will simply make rings round you. Time and again, when thus annoyed, did we hurl our walking sticks at them, but they only opened their wings and flew round us, a few feet from the ground. Most of the nests we found were stumbled upon accidentally, although we occasionally met with a close-sitter—an adept in the art of broken wings. Considering the numbers which were breeding, it is strange we came across so few nests.

The habits of the Black-tailed Godwit were also exasperating, but in a different manner. They play the same trick as the Lapwings. Directly you make your appearance on the deltas they rise with the Lapwings and circle overhead, uttering repeatedly a loud and somewhat wild cry, and, of course, disturbing the whole neighbourhood of sitting birds. They are fairly easy to stalk, and with a pair of good binoculars are visible at a great distance ; but are extremely shy and suspicious, and require a considerable amount of patience at times ere a nest is betrayed.

During our stay in Denmark we experienced very cold and wet weather, which rendered stalking anything but pleasant ; consequently we relied rather upon chance, and judged by the behaviour of the parents when we were near the nests. The latter are mere depressions in the ground, lined with a few bits of dry grass. The eggs of the Black-tailed Godwit vary a good deal, some being of a uniform pale olive, whilst others are pale buff, well marked with darker shades of brown.

The nests of the Ruff were fairly easy to find as the birds generally sit tight, and performed the broken-wing dodge almost as well as did the Dunlins. When flushed from a distance they rose quietly and silently, and flopped down a short distance ahead, soon returning on our walking away. Most of their nests were admirably concealed in tufts of the long grass, and the four richly coloured eggs were in many cases standing almost upright on their pointed ends, so deep and cup-shaped were the depressions. The variation in the eggs is very marked, some being pale green, handsomely blotched with umber and vandyke; some dark greenish-brown; and others savouring more of the Redshank type, but always more handsomely blotched.

The habits of both Redshank and Lapwing did not differ in any marked respect from those of the birds at home.

Another wader which is well established, though confined to a certain area, is the Avocet, *Recurvirostra avocetta*, L. These beautiful birds, with their curiously upturned bills, make a pretty picture as they wade about in the shallow water, the sun glinting on their black and snowy white plumage. They are wild and shy during the breeding season, and when approached fly high overhead, uttering a wild, screaming note. Their nests are very open, and the dull-coloured eggs easily found.

The Common Snipe, *Gallinago caelestis*, Frenz., was everywhere abundant, but we were not fortunate enough to find a nest of the Great Snipe, *Gallinago major* (Gm.), although it breeds in Jutland.

The pretty little Wood Sandpiper, *Totanus glareola* (L.), breeds sparsely on most of the deltas, and we saw several pairs, but could never locate a nest. The Golden Plover, *Charadrius plumialis*, L., nests on the heaths, and we saw several breeding pairs, but had no time to spend on them.

Along the Jutland coast the Oystercatcher, *Haematopus ostralegus*, L., and Ringed Plover are abundant, and also the Kentish Plover, *Ægialitis alexandrina* (L.), in various localities; whilst on the portion of the coast which faces Sweden, which we did not visit, the Little Ringed Plover, *Ægialitis dubia* (Scop.), and the Turnstone, *Arenaria interpres* (L.), also breed, the latter, however, very sparingly.

Owing to the immense tracts of reeds, Jutland is rich in breeding ducks. The Shoveller, *Spatula clypeata* (L.), Pintail, *Dafile acuta* (L.), and Mallard, *Anas boschas*, L., are numerous in many places, and we took several nests of these species, and also of the Common

Teal, *Nettion crecca* (L.), and Gadwall, *Chaulelasmus streperus* (L.). The Garganey, *Querquedula circia* (L.), is said to nest also, although we never found a nest, and on the Swedish side the Common Eider, *Somateria molissima* (L.), and Red-breasted Merganser, *Merganser serrator* (L.), are to be found. We only once saw the Sheld-duck, *Tadorna cornuta* (Gm.)—a pair flying low over the coast near Esjberg. No doubt they bred there.

The Corncrake, or Land Rail, *Crex pratensis*, Bechst., was a common bird, and we were fortunate enough to stumble upon a nest and four eggs of the Spotted Crake, *Porzana maruetta* (Leach). It was in a very wet locality, and similar to that of the Corncrake, but slightly smaller, and with a lengthy "run" to it. The female sat tight, and, on being flushed, flew away without demonstration. The Water Rail, *Rallus aquaticus*, L., owing to its skulking habits, was perhaps overlooked.

At the mouth of the Skjernaa, which flows into Ringkjøbing Fjord, are numerous small islets with colonies of Terns. The Common Tern, *Sterna hirundo*, L., and Arctic Tern, *Sterna macrura*, Naum., were the most abundant, but on the Government Reservations there are also numbers of Sandwich Terns, *Sterna cantiaxa*, Gm., and a few colonies of the rarer Gull-billed Tern, *Gelochelidon anglica*, Mont., the only colonies in North Europe, whilst along the coast the Lesser Tern, *Sterna minuta*, L., breeds.

On the deltas, as before mentioned, are numerous swamps, and in such places the Black Tern, *Hydrochelidon nigra* (L.), breeds in small colonies. The nests are extremely difficult to reach, owing not so much to the depth of water as to the dangerous and uncertain nature of the ground below, which rocks up and down in a most alarming manner as one gingerly wades about. The nests are curious little shallow piles of aquatic vegetation, no larger than the rim of a breakfast cup, and raised only a quarter of an inch or so above water-level; they are not moored to the standing reeds, but are fastened from below to the weeds. Owing to the masses of floating herbage which abound, they are somewhat difficult to detect, but by watching the habits of the parents, which are very vociferous and make sundry swoops at one's head, one can generally tell when one is near a nest. The usual clutch of eggs appeared to be three, and some specimens are most handsomely marked. We were charmed with the buoyant flight and exceedingly graceful movement of this beautiful Tern. The manner in which they hawked

for insects over the swamps and along the river was very fine, and we never tired of watching them.

There is an island near the German frontier which can boast of a small colony of Caspian Terns, *Hydroprogne caspia* (Pall.)—about a dozen pairs—strictly preserved by an ornithological society. On the Government Preserves there are colonies of Black-headed Gulls, *Larus ridibundus*, L., Common Gull, *Larus canus*, L., and Herring Gull, *Larus argentatus*, Brünn., and also a small colony of the Little Gull, *Larus minutus*, Pall., which here finds its western limit and is treated to well-merited protection like the Caspian Tern. Strange to say, we never saw the Bittern, *Botaurus stellaris*, (L.), although it breeds fairly regularly in many places.

Of the Grebes, there is a large colony of the Great-crested Grebe, *Podiceps cristatus* (L.), on the Government Preserves, and the Red-necked Grebe, *Podiceps griseigena*, (Bodd.), and Eared Grebe, *Podiceps nigricollis*, Brehm., also breed sparingly.

A very interesting and conspicuous bird in Jutland is the White Stork, *Ciconia alba*, Bechst., which is strictly preserved. Their huge nests are placed on the thatched roofs of the farm buildings—always at an end, and in many places old cart-wheels or hurdles are put up by the owners to form a nesting platform for them. These birds are never molested by the peasants, and we were not fortunate enough to see *inside* a nest, although we tried various ruses for the purpose, the expression of a desire to photograph, etc. We saw an old bird flying to a nest with a huge rat in its bill. The species makes a curious snapping noise by striking together the upper and lower mandibles, for they have no vocal organ.

Of the Hooded Crow, *Corone cornix* (L.), the native crow of Denmark, we saw but a single example. It is abundant in the forests towards the east.

In many places Coots, *Fulica atra*, L., were numerous, but we seldom saw the Moor-hen, *Gallinula chloropus* (L.). The latter fact we often remarked; and it is the more strange as the country seems perfectly adapted to their habits.

Of Jutland's small birds one of the most abundant species is the beautiful Blue-headed Yellow Wagtail, *Budytes flava* (L.). They were everywhere common, and we found many nests. The latter were placed in various situations, a favourite site being at the side of the numerous water-channels and gutters; and they appeared to prefer those that were not too dry. We occasionally, however,

found them on the open meadow-lands in tufts of grass. Six eggs was a frequent clutch. They resemble those of the Grey Wagtail, *Motacilla melanope*, Pall., ranging from whitish-brown to fawn or buff.

Sky Larks, *Alauda arvensis*, L., and Corn Buntings, *Miliaria miliaria* (L.), ranked next in point of numbers; the air was full of the former. Then Reed Buntings, *Emberiza schoeniclus*, L., and Meadow Pipits, *Anthus pratensis* (L.). We never saw the Tree Pipit, *Anthus trivialis* (L.).

Of the continental representative of the Pied Wagtail, *i.e.*, the White Wagtail, *Motacilla alba*, L., we saw but a few pairs, and only discovered one nest. This was placed on the ledge of a beam in an old, disused shed, on rough moorland. It contained six eggs.

On the heaths the Twite, *Linota flavirostris* (L.), and Linnet, *Linota cannabina* (L.), were very common.

We were greatly disappointed with the warblers, that is to say, of what we saw of them. The Reed Warbler, *Acrocephalus streperus*, V., and Marsh Warbler, *Acrocephalus palustris* (Bechst.), were both plentiful, as also the Sedge Warbler, *Acrocephalus phragmitis* (Bechst.), yet we never took a nest, for it was almost impossible to penetrate the immense beds of reeds which they frequented, owing to the dangerous nature of the ground below, and boats were useless in such places. The Icterine Warbler, *Hypolais philomela* (L.), Great Reed Warbler, *Acrocephalus arundinaceus* (L.), Barred Warbler, *Sylvia nisoria* (Bechst.), Blackcap, *Sylvia atricapilla*, L., Wood Warbler, *Phylloscopus sibilator*, Bechst., Willow Warbler, *Phylloscopus trochilus* (L.), and no doubt other species, all breed in Denmark in suitable localities, but we saw none of them except the Garden Warbler and the Blackcap. The Grasshopper Warbler, *Locustella naevia* (Bodd.), appears to be wanting, or at least very scarce.

Chaffinches, *Fringilla coelebs* L., and Greenfinches, *Ligurinus chloris* (L.) were fairly common, and also the Wheatear, *Saxicola oenanthe* (L.) and Whinchat, *Pratincola rubetra* (L.), but the Stonechat, *Pratincola rubicola* (L.), is scarce.

Starlings, *Sturnus vulgaris*, L., House Sparrows, *Passer domesticus* (L.), Swallows, *Hirundo rustica*, L., and both the House Martin, *Chelidon urbica* (L.), and the Sand Martin, *Cotile riparia* (L.), were all abundant, whilst Jackdaws, *Coloeus monedula* (L.), Spotted Flycatcher, *Muscicapa grisola*, L., Pied Flycatcher, *Muscicapa atricapilla*, L., and Ring Doves, *Columba palumba*, L., Stock Doves,

Columba oenas, L., and the Wryneck, *Jynx torquilla*, L., breed commonly in the wooded districts to the east of the country.

The Goldcrest, *Regulus cristatus*, Koch., is also present, and the little Red-breasted Flycatcher, *Muscicapa parva*, Bechst., breeds, but is extremely scarce. We often heard the familiar call of the Cuckoo, *Cuculus canorus*, L.

Of course our list of birds must not be taken as representing the whole of the Danish avifauna—far from it. There are many more, besides those mentioned, which either breed, or are at least met with, in the country. I have only given the results of our own somewhat limited investigations.

NEW LIGHT ON THE HABITS OF THE CUCKOO

(*Cuculus canorus*).

Film Representations of Mr. EDGAR P. CHANCE'S Wonderful
Life Studies.

On 16th November last, there was given at the New Gallery Cinema, in Regent Street, London, a "trade show" of the films Mr. Chance obtained last spring which will dispel entirely many of the traditional ideas hitherto held in regard to the breeding habits of the Cuckoo. It is, perhaps, the most intimate peep we have ever been afforded of the habits of a bird, and, as it clears up so many points that have till now been obscure, to say the least of it, it is difficult to over-rate the importance of what has been accomplished. Mr. Chance's work marks an epoch in nature study, and we feel sure that from now onwards the film will be, to students of nature, an even more useful ally than the camera. Certainly, no book dealing with our birds will be complete in future without a reference to his pioneer work.

Mr. Chance was so kind as to invite many of his oological friends on the occasion above referred to, and the Cinema was as crowded as it would have been for a public performance. The applause that greeted the pictures was proof, had any been needed, of the appreciation they merited.

Before the film was shown, Sir William Beach Thomas and Dr. P. Manson-Bahr, F.Z.S., expatiated at length on the scientific value of the result of Mr. Chance's work and after the film had been projected, Sir R. Baden-Powell and Viscount Grey of Fallodon, after eulogising what had been achieved, referred to the great advantages that would accrue if more of such nature studies were shown in Cinemas.

It was known to many of his friends that Mr. Chance had studied the Cuckoo's habits closely for several years, and had marked down for special observation, a female Cuckoo which he knew so well, that he had named her after one of the prominent ladies of the film world. Indeed, so well had he studied this particular bird, that by this spring he was able to predict, and did so to his friends, the exact hour at which she would lay her eggs, and the nests in which she would lay them. Had Mr. Chance not known so much, he could not have made the ample preparations that he did to secure a film showing exactly what took place when this particular bird laid her eggs.

The series of pictures shown depicted this Cuckoo first taking her usual perch on a tree not far from the nest about to be used, later flying down to the nest, mobbed meanwhile by the Meadow Pipits to which it belonged, then taking one of their eggs in her bill, and seating herself on the nest and finally flying away with the egg of the Meadow Pipit in her bill. The film showed this one Cuckoo approaching and laying in several nests.

Mr. Chance has established a fact that has long been disputed by eminent ornithologists, namely, that the Cuckoo eats the egg which she removes, and, in this connection, he remarked that he thought she removed the fosterer's egg before laying her own in order that she might not inadvertently remove and destroy her own egg.

Other pictures showed the young Cuckoo ousting his foster brothers from the nest, a procedure which the mother Meadow Pipit, returning to the nest while this was in progress, hardly seemed to understand, although more than one person present fancied they detected upon her quite a worried maternal expression.

Viscount Grey remarked that it would be most interesting to learn the methods of the Cuckoo in making use of the nests of other foster parents, and we are betraying no secret when we state that Mr. Chance hopes to secure next year films of what takes place in the case of Cuckoos using nests of other species.

NESTING OF THE COMMON SNIPE IN NORTH KENT.

Mr. G. J. Scholey records the finding of a nest of the Common Snipe on a marsh in North Kent on 6th July last. The nest, he states, was in a tussock, and similar in all respects to that of the Redshank,

being a mere depression lined with marsh grass. The eggs appeared to be highly incubated, and the bird sat very tightly and did not move until nearly trodden upon. We think this is something of a record for Kent in recent years.

THE CROSSBILL IN COUNTY WICKLOW.

A correspondent in County Wicklow secured for us last spring, a nest and three eggs of the Crossbill which were in a Scotch fir tree marked for felling. He stated :—

“ There is no doubt as to their identity, as the birds were in great distress afterwards, and searched each bough for the nest, and curiously there were two hens and the cock in the search, so that, as you thought might be the case, there are more in the vicinity. The nest was not visible from the ground, and was quite hidden in the foliage, and very inaccessible. We had to cut the bough and lower it by degrees to get the nest.

One thing especially is noticeable in this case. The parent bird stripped the adjoining trees of cones and left alone the one with the nest; and surrounding the nest were cones—in fact touching it. Is this instinct to leave food for the young convenient? This is quite apparent although it may be only an isolated case, and may be a guide to further nests being found.

I miss these birds' chatter now as they have left me, even the other hen is not to be seen. The nest and tree were only 50 yards from my cottage so that I could sit and watch them for hours.”

Unfortunately, these three eggs were almost hatched and this, coupled with some damage in the post, made it impossible to save them.

Our correspondent wrote later :

“ There are still Crossbills nesting near me here, but they are now extremely shy, but quite apparently they have made their home here for the summer. The cock sings very beautifully, but very low, and entirely different from his usual sharp, continuous chatter.

There is, undoubtedly, another nest as you suggested, close by, but I am sure the eggs must be hatched by now (15th March).”

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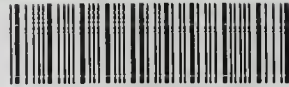
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